

The Javan and Sumatran races (*Leptopteryx leucorhynchus*, (Gm.), Horsf. Tr. Linn. Soc. xiii. p. 306) only have been referred by Prince Bonaparte to *leucogaster*, Val.; but as Valenciennes omits all mention of specimens from those islands, the adoption of his designation does not appear to be well founded. If this form does differ from the two preceding, it would seem to be without a title, were it not probable that the Andaman race is identical with it; for on comparing Captain Beavan's specimens with a Moreton Bay example of *A. leucopygialis*, Gould, I can detect no distinctions between them. Actual comparison must, however, be made with Javan and Sumatran individuals.

6. ONYCHOPRION MELANAUCHEN, (Temm.).

Sterna melanauchen, Temm. Pl. Col. 427.

No. 8. Andamans.

In full plumage.

December 13, 1866.

John Gould, Esq., F.R.S., V.P., in the Chair.

The Secretary read a letter addressed to him by Mr. R. Swinhoe, F.Z.S., dated British Consulate, Amoy, China, September 7th, 1866, announcing the shipment to the Society of a Monkey from the island of North Lena, near Hongkong, supposed to be of a new species, which Mr. Swinhoe described as follows:—

“*INUUS SANCTI-JOHANNIS*, sp. nov.

“Eyes bright hazel; face and ears flesh-coloured; cheeks with a black tuft on either cheek like whiskers; skin of under parts tinted with blue, and sparsely covered with hairs of a light grey, the hairs on the belly buff; fur of upper parts greyish brown, washed with buff, which is lighter on the head, and brickdust-red round and about the rump. Tail $4\frac{1}{2}$ inches long, blackish; and callosities flesh-coloured. Face narrow and somewhat projecting.

“Commander St. John writes to me under date Hong Kong, 27 June, 1866, ‘In one of my late cruizes in H.M. Gunboat ‘Opossum’ I put into the North Lena Island, and was fortunate enough to pick up this Monkey for you. It is a female about four months old, and is already quite tame. I tried to shoot an old one, so as to let you have the skeleton; but they were rather tough for the shot I had, and a living specimen will be much better.’”

Mr. P. L. Selater exhibited specimens of *Eustephanus fernandensis* (Gould's Trochilidæ, vol. iv. pl. 267) and *E. stokesi* (ibid.

pl. 266), and read an extract from a letter addressed to him by Herr E. L. Landbeck, Subdirector of the National Museum of Santiago, Chili, in which it was stated that these two apparently very different birds must be regarded as sexes of the same species—*E. fernandensis* being the male, and *E. stokesi* the female. The Museum of Santiago had sent two expeditions to Juan Fernandez; and on each occasion these birds were observed *paired*, and the red and green young ones found together in the same nest. It followed, therefore, that the examples of each of these birds without the metallic crown, spoken of by Mr. Gould, were to be regarded as in the young plumage of each sex. Of these, examples had likewise been transmitted to Mr. Selater by Herr Landbeck.

Mr. P. L. Selater exhibited a small bundle of feathers of a species of Cassowary, supposed to be those of *Casuarium australis*, which had been taken out of a native hut in Northern Queensland, and were of great interest as being the only portion of this bird ever brought to Europe, the skin of the original specimen procured by the late Mr. Thomas Wall having been unfortunately lost*. Mr. Selater stated that he had been informed by Mr. Walter J. Scott, who had an extensive sheep-run in the Valley of Lagoons on the Upper Burdekin River, about 100 miles westward of Rockingham Bay, that this bird was well known in the neighbourhood of Rockingham Bay under the name of the *Black Emu*, but was shy and very difficult to obtain.

In relation to this subject, Mr. Selater read the following extracts from a letter addressed to him by Mr. Walter J. Scott:—

“I fear I can tell you but little about the Black Emus or Cassowaries seen in the neighbourhood of Rockingham Bay, Queensland. I have never had the fortune to come across one myself, but have received information of them being seen on three or four occasions, in spots thirty or forty miles apart. I saw some black troopers of the native police returning from an unsuccessful pursuit of one they had seen about three miles from our Vale of Herbert Station (in lat. 18° S.). They were of course perfectly familiar with the Common Emu, and they informed me the bird they had seen was quite distinct from it. They described it as considerably smaller, and with a red head. It was on a piece of open ground, near a scrub, along a running stream. When they got within about 100 yards of it, it ran into the scrub, and they did not get a shot at it.

“The Superintendent of the same station told me on a former occasion he had seen two Black Emus, thinking they were a mere chance variety. Another person in our employment saw one on the ‘Separation Creek’ of Leichhardt, which is really a tributary of the Herbert River. I think one was also seen in the immediate neighbourhood of Cardwell. I have written to my brother Charles to use every exertion to procure you a specimen, and have told him to offer a reward for one, to stimulate the zeal of any one who may come across one. The Common Emu is very plentiful with us; and my

* See Proc. Zool. Soc. 1857, p. 270, and Gould's Handb. B. Austr. ii. p. 206.

informants in each of the above cases were men thoroughly able to distinguish them from a Cassowary.

“Our relations with the Wild Blacks are of so unsatisfactory a nature that we can get no assistance from them.”

Mr. Gould exhibited, on the part of Sir William Jardine, a specimen of a new species of Honey-eater, of the genus *Ptilotis*, from Victoria, Australia, proposed to be called *Ptilotis cassidix*, together with some other rare Australian species, amongst which was a skin of the rare Finch, *Emblema pictum*, from Northern Australia.

Mr. St. George Mivart read the first of a series of memoirs entitled “Contributions towards a more Complete Knowledge of the Skeleton of the Primates,” of which the present related to the “appendicular Skeleton of the Orang (*Simia*).”

This paper will be published in the Society’s ‘Transactions.’

The following papers were read:—

1. Note on a Bat from the Azores.

By Dr. W. PETERS, F.M.Z.S.

Mr. Osbert Salvin has had the kindness to send me four specimens of a Bat, collected by Mr. F. Godman, F.Z.S., in Fayal. They are in a very bad state, and they seemed at first sight to belong to a new species of the genus *Vesperugo*, Keys. et Blas.* But on closer examination they turned out to belong to *Vesperugo leisleri*, Kuhl, a species very widely distributed through the Palæarctic region. This species has not the feet entirely free, as described by Blasius, but the wings are extended either to the beginning or to the middle of the metatarsus.

I do not know that any Bats have been described from the Azores; and therefore this notice may perhaps not be without some interest.

2. Note on a Collection of Mice, made by Captain A. C. Beavan at Maubhoum in 1865. By Dr. W. PETERS, F.M.Z.S.

Capt. Beavan’s collection of Mice contains three species, all belonging to the genus *Mus*, as now restricted.

Two of them are indeterminable, each being represented by a single specimen in a very bad state—one being immature and without front

* *Vesperugo* and *Vesperus* are generally by English writers called *Scotophilus*. But this is wrong; for I have lately very carefully examined the original specimen in the British Museum, on which Leach founded his genus *Scotophilus*. I find that it is without any doubt a very young specimen of *Nycticejus temminckii* from India. The name *Scotophilus*, therefore, is to be reserved for the Old World *Nycticeji*, while *Nycticejus* may be restricted to the American species, which are in several respects different, and for which Rafinesque originally proposed this name.

teeth, and the other apparently full-grown, but without tail, and with the head injured. Only so much is to be seen, that they belong to the short-eared Mice, like our *M. agrarius* and *M. minutus*.

A third and seemingly hitherto undescribed species, of very diminutive size, fortunately is represented by numerous specimens in a tolerable good state.

MUS BEAVANII, n. sp.

Above rusty brown, medially black; lips and the whole underside pale ochraceous; feet white, all the hair being slate-coloured at the base; tail above brown, below with white hairs; upper whiskers black, lower white. Rather smaller and more delicately built than our Common Harvest-Mouse. Ears rounded, and, when laid forwards, reaching to the eye. The proportions of the fingers, toes, and nails appear to be the same as in *Mus minutus*; only the outer toe is proportionally a little shorter. The hand-sole has five, and the foot-sole six pads, which are much smaller and more pointed than in that species. The female has five pairs of teats, two between the legs, one before and two behind the armpit. Tail scantily covered with short rigid hair. The teeth have exactly the same form and the same relative proportions as in *Mus decumanus*.

Measurements of a full-grown female with very developed teats, which show that she had been nursing:—

	mètre.
From snout to base of tail	0·058
Length of tail	0·054
——— of head	0·022
From the snout to the eye	0·009
From the eye to the ear	0·006
Length of ear	0·010
Breadth of ear	0·009
Length of hand with claws	0·006
——— of foot with claws	0·014
——— of skull	0·017
——— of row of molars	0·0035

This species cannot be confounded with *Mus minutus*, which has much shorter ears, only four pairs of teats, the outer toe longer, and much broader pads on the soles.

3. Note on the Geographical Distribution of the Narwhal (*Monodon monoceros*). By Prof. W. LILLJEBORG, F.M.Z.S.

In my 'Synopsis of the Cetaceous Mammalia of Scandinavia,' published by the Ray Society (1866), it is stated at page 245 that "there is a drawing at the Landbohøgskola, at Copenhagen, representing a Narwhal that was stranded in 1803 in the Kielerbugt." This I find is a mistake, as Professor Reinhardt informs me that the drawing in question really represents a *Hyperoodon*, the specimen

which, according to Voigt (F. Cuvier, Cétacés, p. 244) and Eschricht (Zool.-anat.-phys. Untersuch. u. d. nörd. Wallthiere, p. 24), was taken in the Bay of Kiel in December 1801. This supposed evidence of the appearance of the Narwhal in the Baltic Sea has therefore no foundation.

4. On *Galago murinus*, Murr.

By ANDREW MURRAY, F.L.S.

In 1859 I described, under the name of *Galago murinus*, a small *Galago*, of which I had received a specimen from Old Calabar through my much valued friend the Rev. W. C. Thomson.

From the description and the figure which was published along with it, Dr. Gray came to the conclusion that the animal I had described was only the young of *Galago demidoffii*, Fisch.; and in 1863, in the 'Proceedings' of this Society, he referred to it as synonymous with that species, saying "I am induced to suppose that Mr. Murray's *Galago murinus* from Old Calabar is the young of this species, as the hind foot is figured about $1\frac{1}{4}$ inch long." I should observe that the figure was not very characteristic, and the hind foot is represented in a position which makes it a trifle too long.

This synonymy is adopted by Mr. St. George Mivart in his paper "on the Crania and Dentition of the *Lemuridæ*"—I presume, upon the authority of Dr. Gray's conjecture; and now that it has got into the stream of synonyms, it will of course float on among them, unless I can drag it out before it has got much headway.

Having received two additional specimens, both in spirits, I have presented one of them to the Museum of the Royal College of Surgeons; the other I have taken out of the spirits and show it to the Fellows of the Society this evening; and after it has undergone the scrutiny of their inspection it will be deposited in the British Museum. Both specimens, as well as a third which I received some years ago, although all received at different times, are identical in size and appearance. These specimens will speak for themselves, and I leave the characters which may be drawn from them to the appreciation of mammalogists.

I wish to speak now only to the supposed synonymy with *demidoffii* on the score of youth. On that point the case stands thus. Specimens of a *Galago* of two sizes, not unlike each other, are received from the same coast, the one being nearly as large as a Rat, the other nearly as small as a Mouse; the larger is what is known as *G. demidoffii*; the smaller what I have described as *G. murinus*.

1. Now my first answer to Dr. Gray's conjecture is, that the animals of both sizes are recognized as distinct species by the natives and missionaries.

In a supplementary communication which I made regarding their habits, and which was published in the 'Edinburgh New Philosophical Journal,' in January 1860, I quoted the following passage from a letter of Mr. Thomson's:—

“Young ones of both species are brought to us about this period of the year (July 26). Mr. Robb has a young specimen of the smaller species just now, and about this time last year I became possessed of one of the larger. It was a most interesting and amusing pet, not only quite tame, but manifesting strong attachment. I had it for about six weeks in my possession, when, unfortunately both for myself and it, it took a false leap into a water-barrel and was drowned. It was a very epitome of zoology, of the size and colour of a large rat; it had the tail of a squirrel, the facial outline of the fox, the membranous ears of the bat, the eyes and somewhat of the manners of the owl in its cool odd way of peering at objects, the long slender fingers of a lean old man, who habitually eats down his nails, and all the mirthfulness and agility of a diminutive monkey. It hated its cage at night, but delighted to leap among the bars of the chairs ranged purposely round the table for it. It could clear a horizontal distance of at least 6 feet at a leap; and whenever it fell, as during its short apprenticeship it often did, and from alarming heights too, it gave expression to its parenthetic chagrin by a rough sort of purring. It possessed a curious power of folding its membranous ears back upon themselves, and somewhat corrugating them at pleasure; and it appeared to me that the palms of its hands, all four, were endowed in some degree with the power of suction, such as the walrus is said to possess in perfection. I have seen it maintain itself in positions where the mere lateral pressure of its limbs appeared to be inadequate for the purpose; and I once applied it to the side of a cylindrical glass shade, of which it could not embrace so much as a third of the circumference, and sure enough it maintained its position for some time, gradually sliding down until it gave way. The palm was very much depressed, always clean and glistening, surrounded by five papilliform growths, those near the roots of the fingers serving as points of opposition to them, the fingers never closing beyond the palm.

“Mr. Robb had one of your species in his possession for a considerable while. It devoured grasshoppers and even the fierce *Mantides* greedily, as well as moths, little as it was; but I never saw mine muster courage enough to attack either grasshopper or *Mantis*, though nearly twice as large as Mr. Robb's. No doubt mine would by-and-by have become less particular and more daring.

“With its friends the smaller species, which we have figured, was very familiar, and used to run over their persons with perfect freedom. A favourite place of refuge was up the coat-sleeve of its master; and a still more frequent retreat was under his whisker, and between it and his shirt-collar.”

This sufficiently shows the views of those who have seen these two species in their native country.

2. The next evidence I shall offer is the fact that the small ones breed, which, although it may not absolutely indicate maturity, at least implies nearly full size.

My friend Mr. Thomson has been invalided, and is now in this country. I have not had the pleasure of seeing him since his return;

but in corresponding with him I took occasion to mention Dr. Gray's doubt, and to ask him if he could say whether the specimens which he had sent to me, more especially those which I had last received, were young ones of the larger species, or belonged to the smaller. To this he replied:—"The *Galago* you speak of is most likely to be a sample of your own species: we undoubtedly have two species in Old Calabar, the other being much larger than yours; but of it I have seldom got specimens. I have had individuals of both kinds in captivity a long time. There were three or four of your species, only one of the larger; the former, *though they breed in captivity*, never grew more than about 3 or 4 inches long in the body, from the tip of the muzzle to the root of the tail, the other fellow growing within the year to the size of a large rat, 6 or 7 inches long. I think I have sent you young specimens (one or more) of the larger species, and hence dare not say positively which of the two the specimen in your possession is. If I saw it I should know it at once."

In consequence of this I forwarded the specimen, now on the table, to Mr. Thomson for his opinion, and received the following reply:—"I received the little *Galago* this morning, and have no hesitation in pronouncing it to be one of your species."

3. Another mark of distinction, which, however, is difficult to put into words, is the voice. Mr. Thomson says, "The voice of the little Calabar species, once heard, is easily recognized, that of the larger species being totally different and of very lugubrious tone. Indeed I think the latter is the same that is ascribed to the Awuri (*Tiliqua fernandesi*), the (supposed) venomous lizard of the same place."

I have elsewhere (Proc. Roy. Phys. Soc. Edinb. i. 417) given an account of the cry of this lizard, and the tale which the natives have engrafted upon it.

It appears, from another part of the same letter, that we have not yet exhausted all the treasures of Old Calabar, and that more novelties await the adventurous explorer:—

"When last at Calabar I got possession for an hour or so of a beautiful little creature of a kind rather between the *Galago* and the Mouse than the Monkey and the Squirrel. It was altogether a dumpier little creature than the *G. murinus*, with tail not so long in proportion, and no remarkable disparity between the fore and hind legs. All its hands were armed with claws. The fur had rather less brown in it than that of the *Galago*. While I endeavoured to get a cage for it, somebody removed the shade in which I had put it for the time, and my little friend decamped without saying good-bye. It was a pretty little thing."

5. Further Observations relating to the Anatomy of the Giraffe. By EDWARDS CRISP, M.D., F.Z.S., &c.

It will be remembered that at two meetings of this Society I have described some points connected with the anatomy of the Giraffe (P. Z. S. 1864, p. 63 and p. 269). In my first paper I gave the length of the intestinal canal of three Giraffes, in which I had measured it, and also the length of the alimentary tube of many other ruminants that I had examined, by way of contrast. In the old female Giraffe (eighteen years of age) this canal measured 254 feet, in the young male 209 feet, and in a young male aged two months 107 feet 11 inches. I mentioned in that paper that in the length of the alimentary tube the animals examined by me differed materially from those inspected by Professor Owen, the length of the tube in the three adult animals dissected by him being only 124, 133, and 136 feet ('Transactions,' ii. p. 227). I also in that paper alluded to the account of an examination of a young Giraffe by MM. Joly and Lavocat, as described in the 'Mémoires du Muséum d'Histoire Naturelle de Strasbourg.' These gentlemen were astonished at the great length of the intestinal tube, which they describe as really extraordinary: it measured 65 metres 25 millimetres, or about 211 feet; but it must be remembered that this was a young animal. MM. Joly and Lavocat express their belief that the Giraffe, with the exception of the Sheep, has relatively a longer intestinal tube than any other mammal: but this is a mistake; many mammals, including several ruminants, have, taking the length of the body into account, a longer intestinal canal than the Giraffe: the Pig, Seal, and Porpoise need only be mentioned as examples; I could adduce many others.

In my second paper I described other points relating to the anatomy of the Giraffe, especially that in connexion with the intestinal glands (so called), and also a peculiar ridged appearance of the rectum, of which I showed wax casts, and which I thought at that time was a natural appearance. These descriptions were taken from a fourth specimen I examined, that died in the Society's Collection, probably from spasm of the glottis. In this animal, a young male aged seven months, the alimentary canal measured 123 feet 6 inches.

The Society will pardon me for this repetition; but it is necessary for the proper understanding of the subject.

The recent death of a female Giraffe (the daughter of the one first inspected), aged twelve years, at the Zoological Gardens from fire has enabled me to obtain further information upon two points which I was anxious to investigate,—1st, the length of the alimentary tube; 2ndly, the appearance and size of the so-called cæcal gland in an adult animal. I first ascertained by examination of the rectum that there were no such ridges or elevations as I saw and described in the young Giraffes; so I infer that these ridges are peculiar to the young animal, or that their presence was accidental. I have since seen in several oxen that I have examined that were killed for cattle-plague

the same ridge-like appearance of the rectum ; but I had not previously seen it in any other ruminant excepting the young Giraffe's alluded to.

On this occasion I was fortunate in having the assistance of Dr. Murie in the examination and measurement of the intestinal tube of the Giraffe just spoken of, and we found the length as follows :—

	ft.	in.
Œsophagus	6	2
Stomach	5	9
Small intestines	130	6
Large intestines	83	0
	<hr/>	
	225	5

It will be seen that, taking age into account, this animal had as long an intestinal canal as its mother.

I have made a large number of measurements* of the alimentary canal in old, adult, young, and foetal animals, the account of which would occupy too long space in the present paper, but the physiological deductions from which are of great interest. In the five Giraffes alluded to, when the age and size of the animals are considered, the progressive increase of the alimentary tract is made out with tolerable clearness.

I will now allude to the appearance of the cæcal crypts in the adult animal. In the young Giraffe, seven months old, mentioned in my last paper, these crypts occupied a space of about 2 square inches. In the adult animal they extended over a larger surface ; but their increase was not very considerable. It will be recollected that this question, as to the rate of increase of these structures as the animal advanced in age, was thought to be one of great interest at a former Meeting of the Society.

On carefully examining the crypts and sacculi near to the pylorus of the young Giraffe described in my last paper I find, on removing the muscular coat from behind, a number of minute oval-shaped glands, the mouths of which terminate in the sacculi.

The cæcal aggregation of sacculi and crypts is called by Dr. Cobbold (Museum of Natural History, p. 156) a compound gland ; and, as I have before said, he compared seven of the pouches to the water-bags of the Camel ; but they bear little or no resemblance to these, as they are non-elastic and are not extended externally when inflated.

When I first examined these crypts I failed to detect their glandular character ; but after a more minute microscopical examination by daylight I have no doubt respecting their glandular nature. They are composed of globular-shaped crypts, joined by their sides to the neighbouring crypts ; the parietes are composed of small

* In measuring the intestinal canal, as I have stated in former papers, I pull the intestines from the mesentery. If two ruminants, Sheep for example, are examined at the same time, one by the method just described, and the other by *carefully cutting close to every part of the intestines with scissors*, the length will be found to be nearly the same ; the latter method is tedious, and unnecessary when the former can be practised.

oblong glands, which terminate in open mouths something like the proventricular glands of a bird. The mouths of but few of them are distinguishable; but the preparation has been in spirits for two years, and its normal structure is not so readily made out. I speak therefore with some amount of hesitation.

The three agminated patches in the small intestines, alluded to in my former paper (P. Z. S. 1864, p. 269), consist of large villi (as seen in the woodcut fig. 1, magnified 20 diameters). Fig. 2 represents the duodenal glands and crypts of about half their natural size; a small portion of the duodenum only is depicted. The size of the crypts has been diminished by immersion in spirits.

Fig. 1.



Fig. 2.



It will be interesting to compare these with the same structures in an adult animal. Illiger and Swainson placed the Giraffe with the Camels; and these glands, crypts, and villi bear some resemblance to those found in the *Camelidæ*; but the blood-corpuseles of the Camel and many parts of its anatomy differ widely from those of the Giraffe.

As I have mentioned in a former paper, a large agminated cæcal gland is seen in the same situation in many animals; that in the Nylgau (*Antilope picta*) and that in the Jaguar (*Felis onca*) are very remarkable. Its use remains to be determined by future investigators; but it is probably a secretory gland adapted for the special requirements of this part of the tube.

It is worthy of note that in the mother of this Giraffe I found several *Echinococci* in the spleen; in this Giraffe the liver contained one of these parasitic cysts.

Not wishing to interfere with the province of Dr. Murie, I leave other matters to his description. As this animal was in good health when suffocated I took a piece of its flesh and had it cooked in two pieces,—the one as a chop, the other, after being prepared with treacle, nitre, and spice, like the so-called Dutch or “hung beef.” The fresh-cooked meat had rather a musky smell, and the flavour was not so good as that of beef or mutton; the spiced meat was excellent, and equal to that of any beef prepared in the way I have described. I mention this for two reasons,—first, because the Giraffe is not an unlikely animal to be kept hereafter during the summer in some of our English parks; and secondly, because Dr. Livingstone

has stated in one of his works that the flesh of the Giraffe is not good to eat, or that it has not an agreeable flavour.

P.S. Since this paper was read, I have had an opportunity of examining the Hippopotamus that was recently burnt at the Crystal Palace; and in this animal I find a still more remarkable intestinal gland, of the same character as that of the Giraffe.

6. On some Additions to the Catalogue of Birds collected by Mr. E. Bartlett on the River Ucayali. By P. L. SCLATER, M.A., Ph.D., F.R.S., and OSBERT SALVIN, M.A., F.L.S., &c.

Since our previous communication to the Society on Mr. Bartlett's ornithological collections in Eastern Peru *, a second, small collection has been received, amongst which are examples of twenty species which did not occur in the former one, and of which the names with some remarks are now given. We have no exact information as to the locality of the present series; but they are probably from the Lower Ucayali or the vicinity of Nauta. Mr. Bartlett has now moved further up, to Yurimaguas on the Huallaga, and its vicinity.

Fam. TANAGRIDÆ.

1. *PROCNIAS OCCIDENTALIS*, Sclater, C. A. B. p. 55. 1013-16.

Fam. FRINGILLIDÆ.

2. *GUIRACA CYANOIDES* (Laf.); Sclater, C. A. B. p. 101.

Fam. DENDROCOLAPTIDÆ.

3. *ANCISTROPS LINEATICEPS*, Sclater, C. A. B. p. 157.

One example, agreeing with Sclater's type specimen from the same country.

4. *AUTOMOLUS ERYTHROPTERUS*, Sclater, C. A. B. p. 158.

A single example, agreeing well with Sclater's type, which is a Bogota skin.

5. *XENOPS HETERURUS*, Cab. & Hein.; Sclater, C. A. B. p. 159.

A single example of very diminutive size, but otherwise best agreeing with *X. heterurus* ex Bogota. Whether this form be really distinct from the Brazilian *X. rutilus* is perhaps rather doubtful.

Fam. FORMICARIIDÆ.

6. *CYMBILANIUS LINEATUS* (Vieill.); C. A. B. p. 170.

7. *FORMICIVORA QUIXENSIS* (Corn.); C. A. B. p. 182.

* Proc. Zool. Soc. 1866, p. 175.

8. *HYPOCNEMIS FLAVESCENS*, Sclater, P. Z. S. 1864, p. 609.

A single skin, agreeing with Sclater's type specimen, collected by Natterer at Marabitanas in 1831.

9. *MYRMELASTES PLUMBEUS*, Sclater, P. Z. S. 1858, p. 274, pl. CXLIII.; C. A. B. p. 189.

One skin of this scarce species.

Fam. TYRANNIDÆ.

10. *LEPTOPOGON AMAUROCEPHALA*, Cab.; C. A. B. p. 213.

Apparently not different from Brazilian skins. Cabanis has lately separated the northern form (from Mexico and Central America) as *L. pileatus* (Journ. f. Orn. 1865, p. 414).

Fam. COTINGIDÆ.

11. *PIPRA AURICAPILLA*, Licht.; C. A. B. p. 249.

Examples of both sexes of this species.

12. *MACHÆROPTERUS STRIOLATUS* (Bp.); C. A. B. p. 250.

Females, apparently of this species.

13. *CHIROMACHÆRIS MANACUS* (Linn.); C. A. B. p. 252.

One skin, apparently referable to the female of this species.

14. *PHÆNICOCERCUS NIGRICOLLIS*, Sw.; Sclater, C. A. B. p. 253.

A single skin seems referable to the female of this species.

Fam. PSITTACIDÆ.

15. *CHRYSOTIS PÆCILORHYNCHA* (Shaw).

Fam. CHARADRIIDÆ.

16. *CHARADRIUS VIRGINICUS*, Licht. Doubl. p. 70 (1823); Baird, B. N. A. p. 690.

Fam. SCOLOPACIDÆ.

17. *ACTITURUS BARTRAMIUS* (Wilson); Baird, *l. c.* p. 737.

18. *HIMANTOPUS NIGRICOLLIS*, Vieill.; Baird, *l. c.* p. 704.

Fam. ARDEIDÆ.

19. *ARDEA AGAMI*, Gm. *Agamia picta*, Bp. Consp. ii. p. 127.

Fam. RALLIDÆ.

20. *PORZANA EXILIS* (Temm.). *Rallus exilis*, Temm. Pl. Col. 523. *Gallinula ruficollis*, Sw. An. in Men. p. 349.

Agrees with specimens of this species in the British Museum.

7. List of Birds observed at Wellington, Neilgherry Hills, about 6000 feet above the level of the sea, during the months of April and May, 1866. By Captain G. E. BULGER, 10th Regiment, F.L.S., C.M.Z.S.

1. *NEOPHRON PERCNOPTERUS*, Linn. White Scavenger Vulture*. Tolerably abundant.

2. *TINNUNCULUS ALAUDARIUS*, Briss. Kestrel. I only saw four or five, near the top of one of the hills.

3. *MICRONISUS BADIUS*, Gmel. Shikra. Saw two only.

4. *HALIASTUR INDUS*, Bodd. Maroon-backed Kite. Apparently not numerous.

5. *MILVUS GOVINDA*, Sykes. Common Pariah Kite. Plentiful.

6. *HIRUNDO DOMICOLA*, Jerdon. Neilgherry House-Swallow. Tolerably abundant.

7. *HIRUNDO DAURICA*, Linn. Red-rumped Swallow. Appears to be common.

8. *COTYLE CONCOLOR*, Sykes. Dusky Crag Martin.

I saw only a few of these; but met with one nest, on the 15th of April, which contained young ones: it was under a projecting crag, near one of the mountain streams.

9. *CYPSELUS MELBA*, Linn. Alpine Swift.

These noble Swifts were abundant at Wellington and at Conoor; the contrast between their size and that of the common Indian species (*C. affinis*) is very striking.

10. *CYPSELUS AFFINIS*, Gray. Common Indian Swift. Plentiful. Frequenting the same localities as *C. melba*.

11. *PALÆORNIS SCHISTICEPS*, Hodgson. Slaty-headed Parrakeet. I only saw one individual.

12. *CENTROPUS RUFIPENNIS*, Illiger. Common Coucal.

Abundant everywhere in the jungles, where its curious hooting cry (which sounds like *hoo-hoo-hoo-hoo-hoo*, uttered slowly, with a long stress upon the first, third, and fifth syllables) is constantly to be heard. It is a showy bird, owing to the bright chestnut hue of its back and wings.

* The nomenclature is that of Jerdon's 'Birds of India.'

13. *TACCOCUA LESCHENAULTII*, Lesson. Southern Sirkec.

I only met with three of these birds, on one of the slopes of the Dodabetta range of hills, about 6500 feet above the sea-level.

14. *ARACHNECHTHRA ASIATICA*, Latham. Purple Honeysucker.

A common bird at Wellington, and constantly about the gardens. It has a feeble little song, which it frequently entertained us with.

15. *DICÆUM CONCOLOR*, Jerdon. Neilgherry Flowerpecker.

This bird did not appear to be very plentiful, notwithstanding its English name.

16. *UPUPA NIGRIPENNIS*, Gould. Indian Hoopoe.

A pair of these were daily visitants of our garden; I saw no others.

17. *LANIUS ERYTHRONOTUS*, Vigors. Rufous-backed Shrike.

One of these Shrikes resided constantly in our garden, and he was very rarely silent. From the earliest dawn to sunset his curious voice was to be heard, uttering every variety of sound within his power. He generally sat on one of the highest branches of an acacia tree, twittering, and screaming, and chattering away until his harsh tones became positively annoying. His chief note was like "*cover-it-up*," pronounced very quickly; this was repeated several times, and then he usually followed it with "*kee-up*," laying a great emphasis on the first syllable, and running the second rather short. He was also fond of another note, which sounded remarkably like "*give-us-a-bit*," uttered with great rapidity. Occasionally he warbled like a Canary; but it was not often that he condescended to anything so musical, or varied his usual harsh utterances. He was an excellent mimic, and amongst the calls of other birds which he imitated to perfection was the "*did-he-do-it*" of the Red-wattled Lapwing (*Lobivanellus goensis*). All this time the female, for whose pleasure he doubtless exerted his powers of making a noise so incessantly and successfully, was the occupant of a nest which hung from one of the pendulous branches of an acacia tree close by, completely inaccessible to me; otherwise I might have been tempted to appropriate the eggs.

18. *DICRURUS MACROCERCUS*, Vieillot. Common Drongo-Shrike.

The King Crow did not appear to be plentiful.

19. *LEUCOCERCA PECTORALIS*, Jerdon. White-spotted Fantail.

This little bird, to my fancy, sings most melodiously and softly, especially in the early morning, soon after sunrise. One paid our garden at Wellington constant visits, and on such occasions he was seldom silent, but continued to chaunt his sweet little song at intervals of about a minute. His stay was never very lengthened, rarely extending over half an hour or thereabouts. He was a busy, restless little creature, hopping and flitting about amongst the branches without intermission, and spreading out his tail like a fan repeatedly.

His note, which was soft and weak, appeared to me to resemble the words "*pretty Bobby, sweet-oh-sweet: sweetly,*" whistled slowly, and with the first, third, fifth, and seventh syllables of the sentence prolonged.

20. *HYPsipetes neilgherriensis*, Jerdon. Neilgherry Black Bulbul.

A few only came under my notice.

21. *Otocompsa jocosus*, Linn. Red-whiskered Bulbul.

Perhaps the commonest bird about Wellington: I daily saw dozens of them. They are perpetually on the move, and continually exercising their sweet flute-like voices.

22. *Pycnonotus hemorrhous*, Gmelin. Common Madras Bulbul.

Abundant about Wellington.

23. *Prinia socialis*, Sykes. Dark-ashy Wren Warbler.

One of these birds only.

24. *Pratincola atrata*, Blyth. Neilgherry Black Robin.

A constant frequenter of the gardens and roadsides; it sings sweetly, and does not manifest much fear of human beings.

25. *Orthotomus longicauda*, Gmelin. Indian Tailor-bird.

I only met with one individual of this species.

26. *Calobates sulphurea*, Bechstein. Grey-and-yellow Wag-tail.

I only saw two or three.

27. *Parus cinereus*, Vieillot. Indian Grey Tit.

These pretty, inquisitive little birds were very common; and I constantly saw small parties of them wandering about the garden, and even paying visits to the verandah of the bungalow. They are very confiding and familiar in their habits, and I have had them come within 2 feet of where I was sitting.

28. *Corvus splendens*, Vieillot. Common Indian Crow.

Seemingly as abundant and as impudent as in other parts of India.

29. *Corvus culminatus*, Sykes. Indian Corby.

Common.

30. *Dendrocitta leucogastra*, Gould. Long-tailed Magpie.

One only of these birds came under my observation. It had a loud voice and a peculiar call.

31. *ACRIDOTHERES TRISTIS*, Linn. Common Myna.

Most abundant. Dozens were to be seen each day, following at the heels of the natives who were engaged in ploughing up the fields.

32. *MUNIA MALABARICA*, Linn. Plain-brown Munia.

Tolerably common.

33. *ESTRELLA AMANDAVA*, Linn. Red Waxbill.

Two flocks of Amaduvats passed close to me one day in the early part of May, the only ones I met with.

34. *PASSER INDICUS*, Jard. & Selby. Indian House-Sparrow.

Common, and familiar as usual.

35. *ALAUDA GULGULA*, Franklin. Indian Skylark.

Common. It sings very sweetly. But those I saw did not soar above fifteen or twenty yards.

36. *PALUMBUS ELPHINSTONEI*, Sykes. Neilgherry Wood-Pigeon.

An inhabitant of the sholas, or forest-patches of the hills; I only saw one bird.

37. *TURTUR RISORIA*, Linn. Common Ring-Dove.

Apparently rare.

38. *GALLUS SONNERATII*, Temm. Grey Junglefowl.

One bird only.

39. *PERDICULA ERYTHORHYNCHA*, Sykes. Painted Bush-Quail.

Abundant. I constantly flushed them from the sides of the roads, especially towards evening.

40. *LOBIVANELLUS GOENSIS*, Gmelin. Red-wattled Lapwing.

The curious cry of this bird, resembling the words "*did-he-do-it*," is very shrill, and audible at a long distance. I found a pair of them in a marshy valley at the foot of one of the higher hills.

8. Notes on the most frequent Fosterparents of the Cuckoos of Australia. By EDWARD P. RAMSAY, of Dobroyde, New South Wales, C.M.Z.S.

1. THE LINEATED ACANTHIZA. *Acanthiza lineata*, Gould's Birds of Australia, iii. pl. 61.

This pretty little species is one of the most common birds in the neighbourhood of Sydney, and, with the exception of *Acanthiza nana*, is the most diminutive of its genus yet known. It shows a decided preference for the leafy tops of the *Eucalypti* and ends of the

branches of almost any tree or bush, where it seeks for minute insects and the larvæ of various minute Lepidoptera.



Nest of *Acanthiza lineata*.

The nest of the Lineated *Acanthiza* is one of the most beautiful of those of our Australian birds. It is a neat, oval, compact, and remarkably strong structure, in length $4\frac{1}{2}$ to 5 inches, by 3 inches through, composed of fine shreads of stringy bark, closely interwoven, and frequently ornamented with pieces of white spiders' nests. It is lined warmly with feathers, opossum-fur, or the silky down from the seed-pods of the native cotton-tree.

The nest is suspended to a thin twig at the end of some leafy bough by the top; and the small opening, about 2 inches down the side, is neatly covered with a hood, which excludes both the sun and rain. Some of the nests are without any ornament; others are decorated with pieces of white paper-bark, or with green and white spiders' nests. Long streamers of bleached seaweed are also often used; and when the nests are placed in the gullies of the ranges, a beautiful bright-green string-like *Hypnum* is employed.

We find this species of *Acanthiza* usually the first to commence breeding. I have taken its eggs in July, but for the most part find them from August to September. They are three in number, rather long, and of a beautiful pinky white, zoned at the larger end with minute freckles and irregular markings of a light brownish red, having also a few minute linear dashes of the same colour over the rest of the surface. The zone at the tip of the larger end is extremely characteristic; few specimens are found without it; but some, which I believe to be the eggs of young birds breeding for the first time, are of a pure white without any markings whatever. The average length is $\frac{6\frac{3}{10}}$ and $\frac{7}{10}$ of an inch, by $\frac{5}{10}$ in breadth. This species has two, and sometimes three broods in the year, stragglers breeding as late as December and January, and is perhaps more frequently the fosterparent of the Bronze Cuckoo (*Chalcites lucidus*) than any other species. Two Cuckoo's eggs of this species have more than once been taken out of the one nest at the same time, but we have never found more than one young Cuckoo hatched.

Except during the breeding-season, the Lineated *Acanthiza* is found to assemble in small troops from five to eight or ten in number, traversing the leafy boughs of the *Eucalypti*, turpentine (*Syncarpia*), and almost all trees alike, showing no preference to any species.

This *Acanthiza*, although frequently found building its nests within 2 or 3 feet of the ground, as well as among the higher branches of the trees, is strictly arboreal.

Their song is a slight twitter, or rather a combination of twitterings, very merry and lively, besides a pleasant little warble of short duration, invariably emitted when engaged in conveying a fresh piece of material to its nest.

2. THE YELLOW ACANTHIZA. *Acanthiza nana*, Gould, Birds of Australia, iii. pl. 60.

This species, the smallest of its genus, and doubtless the most diminutive of our Australian birds yet discovered, with the exception of *Smicrornis flavescens*, closely resembles *Acanthiza lineata* in its habits and actions. Seldom, if ever, found on the ground, it may almost always be observed among the thickest and most leafy boughs, creeping about through the foliage, clinging, head downwards, to the ends of the twigs—in every possible position—sometimes fluttering in front of a bunch of leaves, and darting into the midst of them to capture some spider or grub.

It is a noisy little bird, especially during the early part of the morning, at which time it is exceedingly lively and busy searching for food.

The Yellow *Acanthiza* has no continued song; but nevertheless it is very delightful to hear its pleasant twittings among the flowerbeds and fruit-trees, its pleasing and varied sounds being occasionally accompanied by a sharp note resembling "tsze," "tsze," "tsze," "tsze," "tsze," "tsze," &c., hissed through the teeth.

The nest of this species is not by any means as neat a structure as that of *A. lineata*; it is, moreover, placed in situations quite dif-

ferent. It is of an oblong form, and placed among the topmost twigs of some bushy shrub, composed of red shreds of stringy bark and grasses, and often beautifully decorated with green mosses and lichens, and lined with native cotton-tree down, feathers, or fine grasses. The entrance, which is about $1\frac{1}{2}$ inch from the top, having its edges but roughly finished off, and not covered by any hood, is 1 inch in width. The Yellow *Acanthiza* shows a decided preference for the tops of the native tea-trees; but its nest may also be found in various other trees and shrubs, but always placed among the outside twigs. We have taken nests from a species of *Acacia* overhanging the creeks and rivers. Sometimes they are wholly composed of fine strips of stringy bark, which, when new, give them a reddish-brown appearance. At other times they are composed of dry grass, a great quantity of white cobweb being used in all cases. The total length of the nest of *A. nana* is 3 inches, by $2\frac{1}{2}$ in breadth, being somewhat narrower at the bottom. The eggs are three in number, from $\frac{6}{10}$ to $\frac{6\frac{1}{2}}{10}$ of an inch in length and $\frac{4}{10}$ in breadth, strongly blotched, dotted, or freckled with dark dull reddish brown, inclining to chocolate in some, to red in others, and having a few dots of dull lilac towards the larger end.

In some specimens the markings form a zone on the thick end; in others they are equally dispersed over the whole surface, and take the form of irregular blotches. The birds may be found breeding in September and the three following months, and are frequently the fosterparents of the Bronze Cuckoo.

3. THE SCRUB-ACANTHIZA. *Acanthiza pusilla*, Gould's Birds of Australia, iii. pl. 53.

To complete the list of *Acanthizas* I may make a few remarks upon the present species; but I am afraid I cannot add much to the stock of knowledge already given in Mr. Gould's valuable 'Handbook' to his 'Birds of Australia.'

A lover of the scrubs and thick bushes, this species, although plentiful, is not so often met with as the other members of its genus. In its habits it seems to be intermediate between *Geobasileus* and the true *Acanthiza*, being frequently seen on the ground as well as in the trees. I have never noticed it mounting high among the branches, nor does it appear to like thinly wooded districts, showing a decided preference for the brushwood and edges of scrubs. Upon every occasion that we have discovered its nest it has been placed within a few inches of the ground. One I have at present before me is suspended to the underside of a fern (*Pteris aquilina*): it is a closely interwoven, dome-shaped structure, in form closely resembling that of *A. lineata*, but differs from it in the outside being made as rough as possible, with coarse pieces of strong bark and leaves of grasses, which hang down and stick out from it in various directions; it is composed chiefly of stringy bark and the white paper-like bark of the tea-tree, lined with cotton-tree down and feathers; length 4 inches, by 3 in breadth. The eggs, three in number, have a pure-white ground, zoned at the larger end with freckles of light reddish

brown (in tint duller than in those of *A. lineata*), which in some specimens are also distributed over the rest of the surface. Its note is much louder and more varied than that of any other species. Besides being the fosterparent of the Bronze Cuckoo, this species has frequently the pleasure of rearing the young of the Brown Cuckoo (*Cuculus cineraceus*), three nests out of four lately found of this *Acanthiza* having contained an egg of the *C. cineraceus*.

4. YELLOW-RUMPED GEOBASILEUS. *Geobasileus chrysorrhous*, Cab. Mus. Hein. i. p. 32.

We can hardly claim the present species as a resident Sydney bird, having met with it only upon rare occasions in this neighbourhood. We found it breeding, however, at MacQuarie Fields in 1862; but even there it was considered rare, although about twenty miles further inland it is very plentiful. The Yellow-rumped *Geobasileus* is usually met with in small troops of from five to ten in number, nearly always upon the ground, where it searches for insects of various orders.

I found this bird one of the most common upon the banks of the Hunter River, also in the Wellington and Lachlan districts. Its nest is a bulky, rough, oblong structure, composed of grasses and strips of bark interwoven in a loose ragged manner, with a little cobweb and wool; it is lined with feathers and fine grasses. The entrance is about halfway down the side, with rounded and thickened edges, but without any hood. The most peculiar characteristic of the nest is a cup-shaped framework placed upon the top (often a little to the one side), as if formed for the commencement of another nest; this, I found, is made when the framework of the true nest is formed; but I believe it is added to after the nest is lined and while the bird is still laying. The whole structure is 8 inches high by 4 through, the framework on the top being 2 inches by 3 wide. The breeding-season commences sometimes as early as July and ends in December, during which time three broods are often reared; the most usual months are from August to November. Three or four eggs are the number laid for a sitting: they are of a beautiful pure-white colour, having brownish-red dots, centred with a deeper hue, and sprinkled over the surface or forming an indistinct zone upon the larger end. Eggs of this species are often found without any markings whatever. Length $\frac{6\frac{1}{2}}{10}$ of an inch, by $\frac{5}{10}$ in breadth.

Almost any bushy tree or bough affords a safe place for the nest of this species: the ends of the mangrove boughs overhanging a stream, or even those of the casuarina, the branches of the tea-trees, as well as orange-trees, are resorted to. The birds may frequently be found in the gardens and orchards, and not unfrequently hopping over the roofs of the houses.

5. BUFF-RUMPED GEOBASILEUS. *Geobasileus reguloides*, Cab. Mus. Hein. Theil i. 70. 32, note.

This well-marked species is universally dispersed over the whole of New South Wales, and is quite as plentiful near the coast as further inland. It is usually met with in small companies of five or

ten in number, spends the most of its time on the ground, over which it hops with the greatest agility and ease, or may be found traversing the fences, logs, and fallen trees, peering into every crack and crevice in search of insects, spiders, and larvæ of various kinds. On the Murrumbidgee River I found it in company with *G. chry-sorrhous*, which it closely resembles in habits and actions. A pair have built for a number of years in the side of a hollow branch of an old English oak, close to our residence at Dobroyde, and have frequently had the pleasure of rearing a young Bronze Cuckoo. Sometimes a second pair would take up a similar situation in a branch on the opposite side of the old oak tree.

Little or no preference seems to be shown in the selection of a site for the nest. It is a dome-shaped structure, having a small entrance in the side, and composed of grasses and stringy bark, &c., lined with feathers, cotton-tree down, or "possum" fur. It is placed in a tuft of grass, or low bush, or low bushy shrub, but just as often among the loose pieces of bark which, having accumulated in the forks of the gum-trees (*Eucalypti*), hide all except the entrance of the nest.

A hole morticed in the side of a post and the fork of a tea-tree where rubbish has accumulated alike serve its purpose, the shape depending upon the position chosen. The nests resemble those of the *Malurus cyaneus* both in size and shape; they are, however, much more bulky, thicker, and have a great quantity of lining, which renders them much more warm and comfortable. The eggs, which may be taken from August to December, are four in number, $\frac{6}{10}$ or $\frac{7}{10}$ of an inch in length, by $\frac{4}{10}$ or $\frac{5}{10}$ broad, having a delicate white ground-colour, spotted, freckled, or dashed with markings of reddish brown of various tints, and a few of purplish lilac brown, in most forming a zone at the larger end; the eggs of the young breeding for the first or second time are white without markings.

This species has three broods during the season, and if the nest be taken will frequently build another in the same place.

6. WHITE-THROATED GERYGONE. *Gerygone albobularis*, Gould, Birds of Australia, ii. p. 97.

This delicate little bird is only a summer visitant with us, arriving regularly in tolerable numbers every year during September, and remaining to breed, taking its departure again in March and April. Its arrival is at once made known by its soft and varied strain of considerable melody. From its song (not that it at all resembles the notes of any other bird), and partly on account of its yellow breast, it has gained the local name of the "Native Canary." Upon its arrival it betakes itself to the smaller trees and saplings, and almost at once commences to build, selecting some strong twig among the innermost boughs of a bushy tree, to which it suspends its oblong dome-shaped nest, the extremity of which terminates in a well-formed tail of about 3 inches in length, which is extremely characteristic. The body of the nest is in length from 6 to 8 inches, and 4 in breadth; it is composed of fine pieces of stringy bark and grasses closely inter-

woven and matted together with various cobwebs, being lined with the silky down of the cotton-tree or opossum-fur; the entrance, which is about $2\frac{1}{2}$ inches down the side, is 1 inch in diameter, and completely hidden from view in front by a neatly woven hood of $1\frac{1}{2}$ inch in length.

The nests are often placed in trees covered with ants, which insects are often found on the nests themselves, but do not, as far as I am aware, cause the bird any anxiety. The eggs, which are laid from October to December, and sometimes even as late as January, are three in number. Their ground-colour is of a delicate white, but almost hidden by numerous spots, dots, blotches, and freckles of dull red; in some the markings are thicker upon the larger end, where they form a well-defined zone or circular blotch; others are minutely dotted. Upon the whole, both in shape and colour, they closely resemble those of the Blue Wren (*Malurus cyaneus*), but may be distinguished by being more thickly and strongly marked; they are also slightly larger and more lengthened in form.

This species shows a decided preference for the more open parts of the forest, with thickly foliated trees and young saplings of *Eucalyptus*; its actions among the leaves, where it searches for insects, their larvæ, spiders, &c., are very pleasing and graceful,—stopping in its search every now and then to pour forth its curious and varied song, in which it will sometimes stop abruptly and fly off without finishing, as if something had startled it or suddenly attracted its attention. Although well suited for the purpose, the Bronze Cuckoos seldom lay their eggs in the nests of this species. Still it must be numbered among the fosterparents of that bird, although such is rarely the case.

9. Description of Two New Species of the Genus *Bacillus*, Latr. By Dr. J. KAUP, C.M.Z.S.

BACILLUS GERHARDII.

Viridis; capite carina obliqua inter oculos et basin antennarum, vertice punctis duabus nigris intermediis; occipite globuloso; hoc et thorace subgranulatis; meso- et metathorace spinulis parvis armatis; tibiis et tarsis prope basin foliolo parvo acuto instructis.

In the typical male specimen preserved in the Museum at Darmstadt the meso- and metathorax have some short spines, black on the end, which are shorter on the abdominal segments. All the legs are slender, with short spines; two of them, on the underside, next the end of the four hind femora, are larger. The antennæ, twenty-three-jointed, have some black spots.

Mas. Long. corp. $4'' 2'''$, antenn. $6'''$, mesoth. $7\frac{1}{2}'''$, metath. $7'''$, abd., with the short anal styles ($\frac{1}{2}'''$), $22'''$.

Hab. New Zealand (received from Mr. Gerhard Müller, of Invercargail).

BACILLUS GEISOVII.

Viridis; capite carina obliqua inter oculos et basin antennarum; vertice et occipite 10 nigris spinis; proth. granulato; meso- et metathorace et segmentis abdom. spinosis; pedibus spinosis et foliaceis.

Mas. Long. corp. $18\frac{1}{2}'''$, ant. $4'''$, proth. $1'''$, mesoth. $3\frac{1}{2}'''$, metath. $4'''$, abd. lin. $10 + \text{lin. } 1 = \text{lin. } 11$.

Hab. New Zealand.

The ten black spines of the head are placed in three rows. On the end of the prothorax, in the middle, a black spot; and a fine line along the middle of the mesothorax. Some of the irregularly formed and placed spines are black at the ends. The tubercles of the metathorax obtuse and unicolor. The leaves look short; anal styles on both sides in the middle carinated. One of the middle and one of the hind legs in the specimen described are shorter, and have been reproduced.

I have named this small and slender species in honour of the friend of Mr. Gerhard Müller, Mr. Wilhelm Geisow.

Besides these two species there is yet only discovered in New Zealand *Bacillus hookeri*, White, which has no spines on its body.

10. Note on some Species of Butterflies belonging to the Genus *Catagramma*. By A. G. BUTLER, F.Z.S., Assistant, Zoological Department, British Museum.

In consequence of the similarity of many of the species of *Catagramma*, several errors have occurred in their synonymy; forms which could, with proper care, be readily distinguished from each other have been kept together as representatives of one species.

In Mr. Doubleday's 'Genera of Diurnal Lepidoptera,' p. 239. n. 2, I find *Papilio clymena* of Cramer, *Papilio clymenus* of Fabricius, and *Callicore clymena* of Hübner placed together as synonymous; but after having carefully compared all the figures with the Banksian types and with the specimens in our collection, I find that *C. clymena* of Cramer is quite distinct from Fabricius's type, that the latter is identical with *C. janeira* of Felder, and intermediate between *C. anna* and *C. marchalii* of Guérin; and that the species figured by Hübner in his 'Zuträge' is identical with *C. elvina* of Hewitson.

The synonymy of these three species will therefore be as follows:—

1. CATAGRAMMA CLYMENA.

Papilio clymena, Cramer, Pap. Exot. i. pl. 24. f. E, F (1776).

Callicore clymena (part.), Doubl. & Hewits. Gen. Diurn. Lepid. p. 239. n. 1 (1849).

Hab. Essequibo (Cramer); Peru; Bolivia; Para; Nauta; S^{to} Paulo. B.M.

2. CATAGRAMMA JANEIRA.

Callicore janeira, Felder, Verhandl. zool.-botan. Ver. Wien, Band xii. p. 476 (1862).

Papilio clymenus, Fabricius, Spec. Insect. tom. ii. p. 53. n. 232 (1781); Ent. Syst. iii. 1. p. 43. n. 131 (1793); Mus. Banks. (type).

Callicore clymena (part.), Doubl. & Hewits. Gen. Diurn. Lepid. p. 239. n. 1 (1849).

Hab. Rio Janeiro.

B.M.

3. CATAGRAMMA ELUINA.

Catagramma eluina, Hewitson, Exot. Butterf. i. p. 74, pl. 37. f. 30, 31 (1855).

Callicore clymena, Hübner, Verz. bek. Schmett. p. 41. n. 364 (1816); Exot. Schmett. Zuträge, f. 583, 584 (1825); Doubl. & Hewits. Gen. Diurn. Lep. p. 239. n. 1 (part.) (1849).

Hab. Venezuela; Brazil.

B.M.

Again, at page 245 of the 'Genera,' I find *Papilio codomannus* of Fabricius placed as a synonym of *Catagramma astarte*. The type specimen, however, of the former appears to belong to a distinct species intermediate between *C. astarte* of Cramer and *C. cynosura* of Doubleday; it differs from *C. astarte* as follows:—

Upperside—front wings with an orange instead of crimson subapical spot*; hind wings with a narrower central crimson band.

Underside—front wings with longer and slightly broader subapical yellow band; hind wings proportionally longer, the central ocellate spots less angular, the discal ocellate band in the typical form clouded, especially towards the costa, and the yellow submarginal band broader and not waved.

This species differs from *C. cynosura*, on the upperside, in the shorter discal band of the front wings and the elongate band of the hind wings; on the underside in having no orange costal patch in the hind wings, the discal band in the type clouded, and the submarginal yellow band not waved†.

The synonymy of these insects will therefore be—

1. CATAGRAMMA ASTARTE.

Papilio astarte, Cramer, Pap. Exot. iii. pl. 256. f. C, D (1780).

Callicore astarte, Hübner, Verz. bek. Schm. p. 41. n. 363 (1816); Doubl. & Hewits. Gen. Diurn. Lepid. p. 245. n. 12 (part.) (1849).

Hab. Brazil.

B.M.

2. CATAGRAMMA CODOMANNUS.

Papilio codomannus, Fabricius, Sp. Ins. ii. p. 57 (1781); Ent. Syst. iii. 1. p. 53. n. 165 (1793); Donovan, Nat. Repos. i. pl. 3. f. 1, 1 var. (1823); Mus. Banks. (type).

Catagramma codomannus, Doubl. & Hewits. Gen. Diurn. Lepid. p. 245. n. 12 (part.) (1849).

* This is not merely a sexual distinction.

† Specimens from Éga are exceptions.

Nymphalis codomanus, Godt. Enc. Méth. ix. p. 423. n. 231 (1819).
Hab. S^{ta} Lucia; Brazil (var.). B.M.

Var. *Fascia posticarum supra abbreviata*.

Hab. Ega. B.M.

11. On the Llama and Alpaca in their Summer Dress.

By JAMES MURIE, M.D., Prosector to the Society.

(Plate XLIV.)

During the summer that has just gone by, Dr. J. E. Gray called my attention to the desirableness of having a good photograph taken representing the members of the genus *Auchenia* in their shorn condition. This, however, was found a less easy task than imagined; for no sooner were the animals placed in proper grouping than some one of them would alter its position. I thus was obliged to avail myself of the assistance of my friend Mr. Ernest Grisct, who was successful in delineating the accompanying group of one Llama and two Alpacas (Pl. XLIV.).

The male Llama was received, in exchange for a female one, from Her Majesty the Queen on the 28th April, 1860. The two Alpacas are male and female. The latter, a black-coloured animal, arrived in the Gardens in 1849; the former, a black-and-white male, was received, in exchange for a young one of the above female, from Titus Salt, Esq., M.P., on 13th September, 1860, this male having been bred in England by that gentleman.

Although both Llamas and Alpacas have been bred repeatedly in the Gardens in former years, yet since 1860 no offspring has been produced.

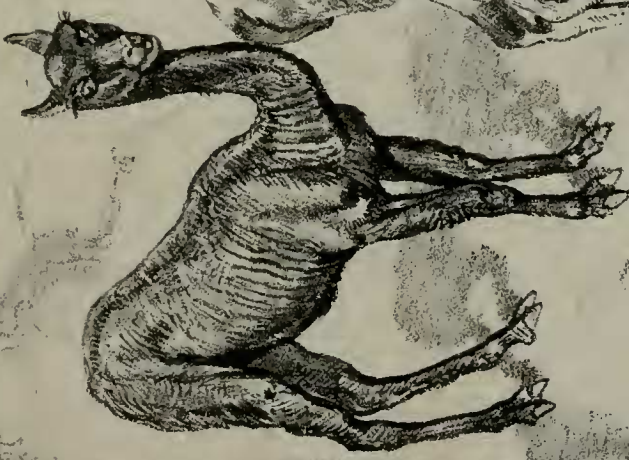
Until lately it has never been thought necessary to shear the animals of their long coats (that is, those in our Gardens), although in their native country, according to Colpaert*, on the Alpaca this operation is performed every two or three years.

On our male Llama the fleece has always remained perfect, until the operation of shearing was performed about the end of last August. On the female Llama, which is along with this male, it was different, as during this summer the fleece became ragged and partially dropped off, which circumstance suggested the shearing of the others. This fact is significant, and at variance with the recorded observations of the late Earl of Derby in his celebrated Knowsley collection. Upon this subject he says †, "Unlike Sheep, these animals never shed their coats."

The same may be said of the Alpacas as of the male Llama, their fleeces exhibiting no signs of falling off.

* Étude sur le Pérou—"Des Bêtes à Laine des Andes," by M. Émile Colpaert, Bull. de la Soc. Imp. Zool. d'Acclimatation, ser. 2. vol. i. (1864) p. 124.

† Gleanings from the Menagerie and Aviary at Knowsley Hall, 1850, p. 54. See also Dr. Gray, Cat. Mamm. Brit. Mus. 1852, (*Ungulata*) p. 255.



LAMAS AND ALPACAS

Ernest Grisey







J. Smit lith

$\frac{3}{4}$

ANTROSTOMUS ORNATUS. ♂.

M & N. Harshart imp



J. Smit lith

M & N Hanhart imp

ANTROSTOMUS MACULICAUDUS

The operation of shearing was performed as ordinarily in sheep, and the quantities obtained were as follows:—From the brown-and-white male Llama about 14 lb.; from the black female Alpaca 8 lb.; and from the black-and-white male Alpaca 8½ lb. Colpaert*, one of the most recent authorities on these animals in their South American haunts, does not compare the weights and value of the fleece in the two domesticated and two wild varieties; but he says that the Chinela, a variety of Alpaca, yields the most esteemed and heaviest kind of fleece, but it is rare that it surpasses 6 or 7 lb.

With regard to the specific differences of the genus *Auchenia*, it is not my intention to speak; but I may with propriety allude to the fact of their Camel-like appearance in the disrobed condition, as compared with their more sheep-like character when enveloped in their thick and long woolly fleece.

As depicted in the plate, the Llama has more clearly a spotted appearance than when the fleece was upon it; this may partly be on account of the original intertwining of the fibres of the two different colours, and still more, no doubt, by the then accumulation of dirt and smoke which blackened the surface. The two Alpacas did not alter in colour so far as to make any marked difference in their aspect.

The neck in all three shorn animals appears to have a far greater length proportionally to the body; and the same remark applies to the hind legs, the thighs of which are seen more than usually free from the body—a character of the family *Camelidæ*. The body in contour is entirely transformed; and the rough sheep- or goat-like hairy carcass, the awkward, uncouth, disproportionate body, with its naked flanks and generally scraggy look, detract from grace in the animals, and render their appearance more remarkable than beautiful.

From their peculiar gait and slouching ungainly manner, if but a hump were present, they would at once recall to mind a tottering young camel.

12. Additional Notes on the *Caprimulgidæ*. By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.

(Plates XLV., XLVI.)

Since I prepared the article on the American *Caprimulgidæ*, read before this Society in February last †, I have collected some further information on this subject, which I now propose to lay before the Meeting.

In the first place, as regards the general arrangement of the group,

* *Loc. cit.* p. 124.

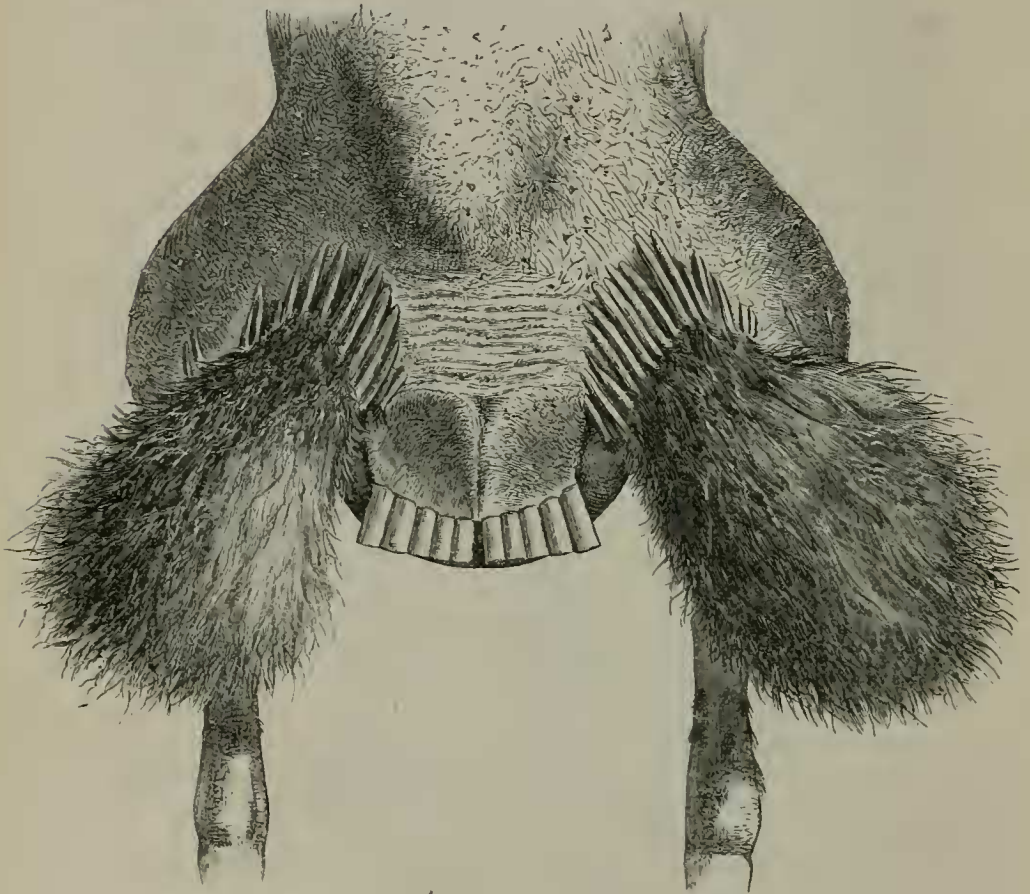
† See P. Z. S. 1866, p. 123 *et seq.* It should be remarked that in this article, in page 139 (as may be easily seen by the context), an error has occurred in the references (lines 6 and 8 from the top) to figs. 10 and 11. It is fig. 10 which represents the outer rectrix of *Stenopsis ruficervix*, and fig. 11 that of *S. bifasciata*. This error has been corrected in the separate copies.

I have been able lately to make a more accurate examination of the structure of the abnormal form *Podargus*, which has tended very much to strengthen my views as to the necessity of referring this bird and its allies to a different family from the typical *Caprimulgidæ*. A specimen of a bird of this genus (probably *Podargus cuvieri*, Vig. & Horsf.), which died in the Society's Gardens a short time since, and was examined by Dr. Murie and myself, presented the following appearances:—

No external opening to the oil-gland could be found, nor any traces of this organ, on dissection.

Two large powder-down patches were discovered, placed on each side of the rump. Each patch consists of about forty feathers,

Fig. 1.



Powder-down patches of *Podargus*. Nat. size.

placed in a line extending from above the outer end of the root of the rectrices towards the femur. A few straggling feathers of the same character border the patch externally towards the knee-joint.

Each feather consists of a horny sheath, about 0·8 inch in length, of which 0·5 is external. At the termination of the sheath the feather presents the usual decomposed appearance of powder-down patches, being divided entirely into numerous elongated minute filaments of a dark-grey colour. The entire breadth of each patch is nearly 1·5 inch, the space between the two patches across the rump measures 0·7 inch.

The rectrices are ten in number, the two medial being, as usual, rather elevated above the lateral.

The remiges are twenty-two in number, ten primaries (of which three are on the metacarpus) and twelve secondaries.

The anterior covering of the tarsus (acrotarsia) consists of about seven parallel scutes, which rather decrease in breadth from above downwards, each one barely overlapping the next succeeding one. Similar series of smaller scutes are continued along the upper surface of the digits. The tarsus is covered posteriorly with small, closely placed, hexagonal scutella, larger at the sides next to the anterior scutes.

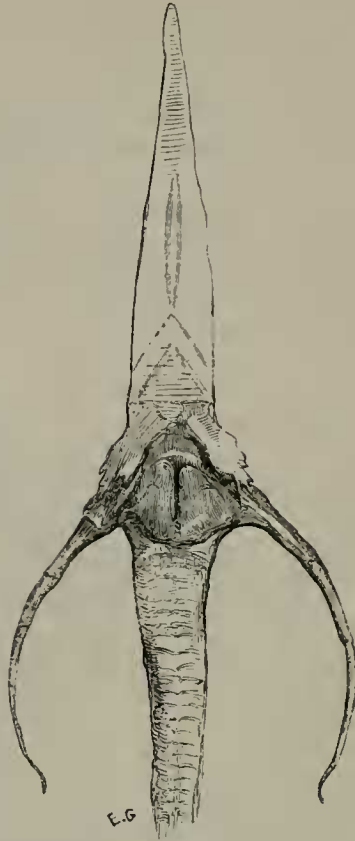
The gullet is very wide from the commencement, measuring about 3·5 inches in length, and terminating in a thicker-walled and rather widened proventriculus, which is encircled within by a series of rather large proventricular glands. Externally the proventriculus is tolerably muscular, the fibres being continuous with those of the outer layer of the gizzard. Between the proventriculus and the gizzard is a slight contraction. The gizzard itself is pyriform, with a rounded tendinous muscular centre, but little or no constriction at the pyloric end. The internal coats are thrown into elongated rugæ, composed of soft leathery membrane, which pouts up at the proventricular aperture.

The pyloric aperture is lateral, and lies 0·3 inch below the cardiac aperture. The intestinal canal is tolerably uniform in diameter throughout, and measures 25·1 inches in entire length. Three inches above the anal extremity two large cæca are given off, 3·6 inches in length, and almost as wide as the intestine. Of these the blind extremities are much widened and bulbous, the lower halves being considerably narrower—very much as in the Owls (*Strigidæ*).

The tongue of this bird consists of a flat, elongated, translucent, horny membrane, much widened at its base, gradually decreasing in width until it tapers suddenly at about one-fourth of its whole length from the anterior extremity. The slender tip is slightly crenated. The whole length from the glottis to the apex is 2·1 inches, the breadth at the root 0·4. The posterior basal fourth is much thickened and nearly opaque, being of a whitish colour. It projects angularly forward into the translucent portion, and almost forms an isosceles triangle. The posterior lateral projections are horny and translucent like the tongue itself, and present no traces of papillæ; but their free-pointed extremities present several small lateral spines.

From these notes, and from what has been stated in my former communication, it appears that *Podargus* differs from the typical *Caprimulgidæ* not only in the several important characters already noted (*ante* p. 127), but also in the entire abortion of the oil-gland

Fig. 2.

Tongue of *Podargus*. Nat. size.

and in the possession of powder-down patches—characters not yet recognized in any of the *Picariæ*, except in *Leptosoma*, where, as I have lately shown*, the latter character is present. It becomes, therefore, of great interest to know whether the other abnormal forms hitherto referred to the *Caprimulgidæ* agree with *Podargus* in these respects. As regards these I have only yet had opportunities of examining skins of *Nyctibius* and *Steatornis*. In *Nyctibius* the powder-down patches are, I think I may say, present; but whether the oil-gland is absent or not I cannot determine. I cannot discover it in my skins; but it is often very difficult to find this organ in dried skins. In *Steatornis* the oil-gland is certainly present—naked as in the typical *Caprimulgidæ*; but there appear to be no powder-down patches. I have taken steps, however, to get some specimens of *Nyctibius* in spirits, in order to be able to make a more accurate investigation on these points, and hope to be able to return to this interesting subject on a future occasion.

I now give some additional notes on various species of American

* P. Z. S. 1865. p. 682.

Caprimulgidæ, which have resulted principally from the examination of the specimens of these birds belonging to the Derby Museum at Liverpool (which have been kindly submitted to my inspection by Mr. Thomas Moore) and those belonging to Mr. Lawrence's collection (which that gentleman has most liberally sent over to me from New York), together with some valuable notes communicated to me by Herr von Pelzeln on the specimens in the Vienna collection.

Genus NYCTIBIUS.

Dr. W. Peters has most kindly sent me over the type specimen of *Nyctibius rufus* of Cabanis (*antè* p. 130), from an examination of which it is at once apparent that, as already hinted by Burmeister (*Syst. Ueb.* ii. p. 378), it is the same as Mr. Gould's *N. bracteatus*. The latter name has precedence, unless we adopt Dr. Cabanis's suggestion that the figure of the 'Pl. Enl.' 735 is intended for this species. I have also met with a skin which I believe to be referable to the same bird, in the Paris Museum, collected by MM. Castelnau and Deville at Pebas on the Upper Amazon. *N. bracteatus* is a very well-marked species, from its small size, general red colouring, and the conspicuous white spots on the scapulars, belly, and under tail-coverts. Mr. Salvin and I intend to give a figure of this handsome bird in an early number of 'Exotic Ornithology.'

Genus ANTROSTOMUS.

Antrostomus cubanensis, Lawrence, *Ann. L. N. H. New York*, vii. p. 260 (May 21, 1860), is unquestionably a different species from any given in my previous paper. It is quite distinct from *A. vociferus* (with which D'Orbigny, Lembeye, and Gundlach have united it), being considerably larger in size, and having the white terminations of the three lateral tail-feathers much narrower, as pointed out by Mr. Lawrence. The bristles which border the gape of the upper mandible are remarkably strong and long, much more so than is the case in *A. vociferus*. Mr. Lawrence has kindly lent me his typical specimen of this species, which may be placed next to *A. vociferus*.

Herr von Pelzeln has kindly sent me the following note upon the male of *Antrostomus rufus* (*antè* p. 136):—

Mas a femina statura majore, torque infragulari albido et caudæ coloribus differt. Rectrices nigro ferrugineoque fasciolatæ, extima pogonio interno, sequentes utrinque duæ utroque pogonio macula subterminali, 2-2½" longa, alba, extus et postice ferrugineo marginata.

Herr von Pelzeln considers that Buffon's wretched figure (Pl. Enl. 735) cannot possibly be intended for this species; and in some points it certainly more nearly resembles *Nyctibius rufus*, as suggested by Cabanis, *Schomb. Guian.* iii. p. 74; but the banded wings and long tarsi forbid one referring it to the latter bird. It would, however, be safer and more just to call this species *A. rutilus*, under which name it was first described by Burmeister.

Antrostomus sericeo-caudatus, *antè* p. 137, sp. 3. Of this well-
PROC. ZOOLOG. SOC.—1866, No. XXXVIII.

marked species there is a single specimen in the Derby Museum, "purchased of Mr. Warwick" in 1849. It is in a bad state, but is immediately recognizable by the peculiar form of the white terminations of the three lateral rectrices, the inner edges of which, when the tail is partially expanded, form a line slanting inwards and downwards towards the centre of the tail. This is well shown in Mr. Cassin's figure (Journ. Acad. Phil. ii. pl. 12). The Derbyan specimen is smaller in dimensions than that described by Mr. Cassin, measuring "whole length 10·0, wing 6·6, tail 5·1," and seems to be rather darker in plumage. The skin in my collection, spoken of (*ante* p. 137) as "probably referable" to this species, belongs to another, apparently undescribed, which I propose to call

ANTROSTOMUS ORNATUS, sp. nov. (Pl. XLV.)

Nigricans rufo et fulvo mixtus, capitis striis longitudinalibus nigris: alis et cauda nigris rufo punctatis, primariis rufo obsolete transfasciatis; caudæ rectricibus tribus externis fulvo late terminatis, pari secundo et tertio ab extra macula magna ovali, pogonium interius et exterioris partem vicinam occupante, supra alba, subtus fulva, ornatis: rectricibus quatuor mediis dorso concoloribus: subtus dorso concolor, sed præcipue in pectore imo et ventre magis albicans, crissi plumis fere omnino fulvis, nigro irregulariter transvittatis: torque jugulari, plumas auriculares utrinque attingente, flavido. ♀ rectricibus lateralibus cum mediis concoloribus.

Long. tota 10 poll. Angl., alæ 6·5, caudæ 4·5; rostri a rictu lin. dir. 1·3, tarsi 1·2.

Hab. in Brasilia.

Besides my own female specimen, there is a pair of this species in the British Museum, from the male of which the figure (Plate XLV.) is taken. There is a similar pair in the Paris Museum.

This species is like *A. rutilus*, but is very much blacker altogether, although, had I not seen several examples of it (as above cited), I should hardly have ventured to separate them. Another point of distinction would seem to be in the large oval spots of the second and third pairs of rectrices (fig. 3, p. 587). These are pure white on the upper surface, and fulvous (like the broad margin which surrounds them) below. This does not seem to be the case in *A. rutilus*, judging from Herr von Pelzeln's description given above.

The general form of this species agrees with that of *A. rutilus*. The rictal bristles are strong and well developed, about nine in number on each side. The wings reach to about 1·2 inch from the end of the tail. The second primary is rather longer than the third and longest, the first being slightly longer than the fourth. The tarsi are feathered above, about three parts of the way down, and naked altogether below.

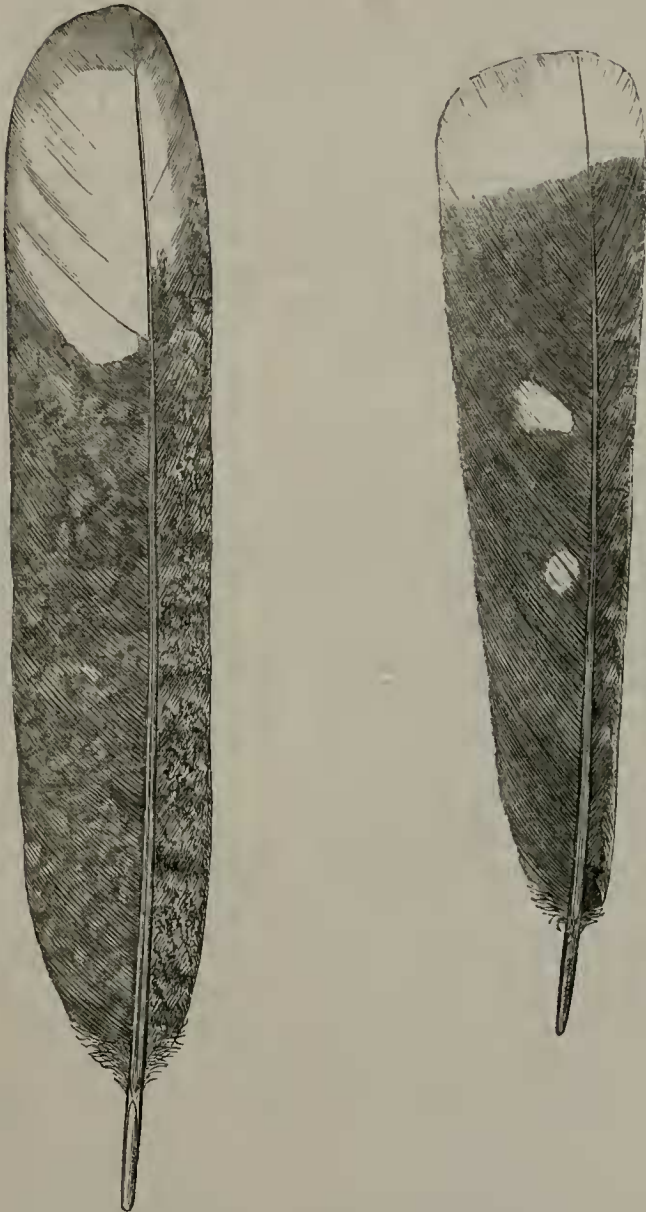
ANTROSTOMUS MACULICAUDUS. (Pl. XLVI.)

Stenopsis maculicaudus, Lawrence, Ann. Lyc. N. Y. vii. p. 459.

Mr. Lawrence has kindly sent me the typical specimen of this bird also, which I had not previously seen. It is a very distinct species,

Fig. 3.

Fig. 4.

Fig. 3. Second lateral rectrix of *Antrostomus ornatus*.4. Outer rectrix of *Antrostomus maculicaudus*.

easily recognizable by the small white spots on the inner web of the four lateral rectrices (see fig. 4), whence Mr. Lawrence has derived its name. A skin in the Derby Museum ("no. 192; purchased of Cuming, September 7th, 1846") seems referable to a younger stage of the same species, being chiefly distinguishable by the narrowness

of the terminal white tail-markings, and the presence of several indistinct rufous bands across the rectrices, which, however, are clearly signs of immaturity. There are also five rufous spots on the inner web of the outer primary, instead of two as in Mr. Lawrence's example; but these may likewise disappear with age. In the British Museum is a skin which I refer to the female of this same species. In this the terminal white tail-bar is altogether absent. Mr. Lawrence's example of this species is stated to have been obtained at Para by Mr. v. Schulte Buckow. Those in the British Museum and in the Derby Museum are both *probably* from Bolivia. In this species, as already noted by Mr. Lawrence, the first primary is as long as, or in fact rather longer than, the second. In every other American *Antrostomus* and *Stenopsis* in my collection the first primary is shorter than the second*.

Genus STENOPSIS.

Stenopsis cayanensis, p. 140.

I have now undoubted Bogota skins of this species, and have also seen a specimen in the Paris Museum collected in Martinique by Rousseau; so that these two localities may be added to the list given (*antèa*, p. 140).

I have already expressed my doubt (*l. c.*) whether Azara's *Ibiyau alas y cola blancas* has not been wrongly referred to this species. These doubts have been solved for me by Herr von Pelzeln, who has kindly furnished me with the following notes on the Paraguayan species:—

STENOPSIS CANDICANS, Pelzeln.

Ibiyau alas y cola blancas, Azara, Pax. no. 314; *undè*

Caprimulgus leucurus, Vieill. Nouv. Dict. x. 246.

C. candicans, Natt. in Mus. Vindob. (sp. 530).

S. corpore supra, tectricibus alarum superioribus minoribus et mediis albescenti-griseis, hinc illinc ochraceo lavatis, minutissime nigro marmoratis; capite stria nigrescente longitudinali et scapularibus striis nigris et maculis ferrugineis ornatis: alarum tectricibus majoribus et remigibus secundariis (exceptis tribus ultimis et aliquorum marginibus) albis: primariis ad basin albis, dein nigris, tertio longissimo: stria a mandibulæ basi ad aures ducta albida; loris, regione auriculari, gula, colli lateribus et pectore castaneis, nigro undulatis; ultimis striis longitudinalibus ochraceis insignitis; gastræo reliquo, tectricibus alarum inferioribus et caudæ truncatæ rectricibus laterulibus albis; his passim ochraceo marginatis.

Long. tota $8\frac{1}{2}$ " , alæ $5\frac{3}{4}$ " , caudæ 4" .

* Since this paper was read, I have received from Prof. Nation, of Lima, a skin of what I believe to be *Capr. æquicaudatus*, Peale. It proves to be quite distinct from *Antrostomus parvulus*, Gould, as I had anticipated (*antèa*, p. 138). I shall point out the difference in a communication which I am preparing on Prof. Nation's collection.

Hab. in Paraguay (*Azara*); Brasil. merid. Irisanga (*Natterer*).

“Like *S. cayennensis* (to which it has been united by most authors), but larger, tail truncate, not furcate, and coloration notably different. The broad rounded primaries, dark brown below, the truncate tail, and the colours of the neck and breast remind one of *Heleothreptus anomalus*.

“The peculiar coloration of this bird might lead one to suspect its being an albinoid variety; but, on the other hand, the regularity of the markings, and its perfect agreement with *Azara*’s description, together with the circumstance that the last-named naturalist observed several individuals, seem to indicate that we have in this case the normal coloration of the species.”

Herr von Pelzeln has also kindly furnished me with descriptions of two additional species in the Vienna Collection, which he refers to the same genus, namely:—

STENOPSIS LANGSDORFI, Pelzeln.

S. corpore supra albescente griseo, plus minusve ochraceo tincto, punctis et fasciis nigris minutis marmorato, pilei plumis mediis fasciam longitudinalem formantibus et scapularibus centro nigris, interdum ochraceo transverse fasciatis, renigum secundo longissimo, primo 2^{'''}, tertio 1^{'''}, quarto 6^{'''} brevior; omnibus brunneo-nigris, tota longitudine fasciis ochraceis 5–6 ornatis; mento et stria utrinque ad aures ducta albidis, lateribus colli, gula et pectore castaneis nigro undulatis, ultimis passim striis albidis obsoletis; gastræo reliquo pallide ochraceo, plumis abdominis superioris fasciis brunneis interruptis 7–9, rectricibus duabus mediis dorso concoloribus, ad scapum fasciis transversis brevibus brunneis 7, versus basin obsoletis; lateralibus pallide ochraceis, fasciis 10–11, interstitiis brunneo marmoratis, rectricibus omnibus ejusdem longitudinis; rostro pallide corneo, apice nigrescente; pedibus pallidis.

Long. tota (specim. exsiccati) 7½^{'''}, alæ 5^{'''} 9^{'''}, caudæ 4^{'''}, rostri a naribus 2½^{'''}.

Hab. in Brasilia orient. Cuyaba (*Natt.*, sp. no. 1150).

“Of this species *Natterer* only obtained a single example, from Herr *Langsdorf* in Cuyaba. In many respects it comes near the foregoing species, but differs in its narrower, more pointed, and entirely banded wings (of which the second primary is the longest), in the ochre yellow of the underside, and the banded tail. Yet such are the variations of sex and age in the *Caprimulgidæ*, that I consider it very possible that it may turn out that this is only the young female of *Stenopsis candicans*.”

STENOPSIS PLATURA, Pelzeln.

Caprimulgus platurus, *Natt.* MS. (sp. no. 421).

S. fronte et linea utrinque superciliari ferrugineis, notæ virescente nigro; capite ferrugineo, reliquis partibus ferrugineo vel griseo punctulatis vel fasciolatis, torque nuchali ferruginea, scapularibus et alarum tectricibus majoribus macula magna

ochracea, remige secundo longissimo, tertio 2''', quarto 10'''*, primo in ala dextra (speciminis unici haud adulti) 15'''*, in ala sinistra 19''' brevior: primariis brunneis, in primis ad vel ultra medium, in reliquis tota longitudine ferrugineo fasciatis, secundariis ejusdem coloris margine postico lato pallide ferrugineo: gula pallide ferruginea; gastræo reliquo ochraceo plumis plus minusve brunneo transverse irregulariter fasciatis; caudæ (incompletæ) reatricibus 1'' latis, griseis, brunneo marmoratis, margine laterali ferrugineo tinctis, fasciis transversalibus brunneis irregularibus, in mediis 7, in lateralibus 9–13, reatricibus externis 6''' brevioribus quam mediæ.

Long. $8\frac{1}{4}''$, alæ $5\frac{1}{4}''$, caudæ 4'', rostri a naribus 3'''.

Hab. in Brasilia merid. Ypanema (*Natt.*).

“This species is near to *S. ruficervix*, but seems to differ in its smaller size, in the presence of grey markings on the upper surface, and in the want of a definite wing-spot and of the white tail-bands, which are also less marked in the female of *S. ruficervix*.”

13. On the Occurrence of *Æstrus tarandi*, Linn., in a Reindeer in the Society's Gardens. By JAMES MURIE, M.D., F.G.S., Prosector to the Society.

The disease commonly called “Bots” is one of frequent occurrence among horses in this country. But the disease or larva producing it is by no means confined to the horse, being found in a number of animals, particularly the Ruminantia, and even in Man himself.

A Dipterous insect, prejudicial to cattle, was known to the ancients; Aristotle, in his ‘History of Animals,’ and Virgil, in his ‘Georgics,’ have both alluded to it. In later times, when a true system of classification was adopted, Linnæus accorded a place in his ‘System’ to the genus *Æstrus*; and that great naturalist himself described more than a century ago the insect, the manner of oviposition, and the larva infesting the Reindeer in Lapland, in several papers communicated to the Swedish Academy, the Upsala Society, &c.

Among our own countrymen, Mr. Bracy Clark* has specially written articles devoted to the consideration of the habits and specific classification of this same genus *Æstrus*. But by far the most complete account of the group is that of Friedrich Brauer†. The observations of these authors, as well as a host of European and American writers, concur in showing that the Ox, Sheep, Goat, Deer, and others among the Ruminantia, the Horse, Ass, and Rhinoceros among Perissodactyla, the Rabbit, Hare, and Squirrel, Dormouse, &c., among Rodentia, the Dog, Badger, Hyæna, and Jaguar among Carnivora, the *Didelphys* among Marsupialia, and some of

* Trans. Linn. Soc. vol. iii. p. 289, vol. xv. p. 402, vol. xix. p. 81.

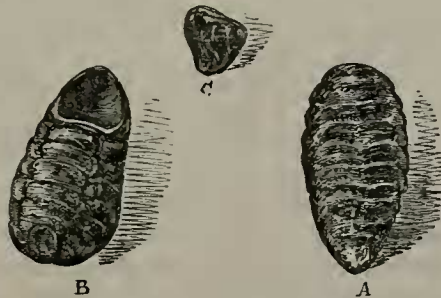
† ‘Monographie der *Æstriden*,’ Vienna, 1863, which work contains a full list of the literature on the subject.

the Platyrrhine *Simice* among *Quadrumana* are each and all, under given circumstances, liable to be attacked by different species of *Æstrus*, which deposit their eggs upon the hairs, or even within the skin of the body.

In Man a number of well-authenticated cases have from time to time occurred, proving that the human body in certain warm countries occasionally furnishes a nidus for some species of this or the allied genus *Cuterebus*. The term *Æstrus hominis* has by some been applied to this parasite; but Goudot*, a French writer, considers that the cases of its being found in Man are merely chance instances of the eggs being deposited in the human skin by the species encountered in different animals.

My present note, however, is chiefly intended to call attention to the fact of two larvæ being detected in the skins of a Reindeer in this country, and its being an example of one of the many means by which species of insects are carried to distant countries.

Two male Reindeers were kindly presented to our Society by H. H. Elder, Esq., on the 1st of June last. They were imported direct from Russia, but possibly may first have come from Lapland. Our Superintendent, Mr. Bartlett, whose powers of acute observation on live animals are well known, detected an unusual appearance on the skin of one of these Reindeer, and, examining it more carefully, found several nodulous excrescences, from which he obtained the two pupæ of which the cases are figured below. Desirous of knowing more respecting them, and rightly judging them to be the result of a diseased condition, he brought them to me. Having before seen



Pupa-case of *Æstrus* from the Reindeer in Gardens, 1866. Nat. size.
A. Dorsal surface. *B.* Ventral surface with lid removed, where insect escaped.
C. Triangular operculum.

pupæ and larvæ of an analogous kind in domestic animals, I knew at once their true nature, and suggested a further search, both for the purpose of ridding the creatures of a painful nuisance, and at the same time of prosecuting the study of the disease. Mr. Bartlett, however, failed in obtaining more specimens, although he noticed the animal's coat to be much pit-marked, apparently where other pupæ had lain buried.

I had the two pupæ in my possession above a week, believing the

* Ann. des Sci. Nat. 1845, t. 3-4, p. 227.

enclosed insects dead or abortive, when, to my surprise, near mid-day of the 6th of July last two perfect insects came forth nearly simultaneously.

One of them, however, appeared stronger than the other, and, its wings drying quicker, it prepared to fly off, and only was prevented by the glass cover on the dish; the other soon after rallied, but did not attain such a complete condition as the first, the wings remaining slightly crumpled and less unfolded. I watched their movements for a considerable time, and then killed and pinned them out on cork for further reference.

I had intended to take them to the British Museum for identification, and to have them figured, and so laid them aside. Next morning, however, I was horrified to find that a mouse had gained access to the glass case in which they were placed, and broken fragments of legs and antennæ were all that remained of the two interesting specimens. My examination of the insects, however, easily permitted my recognizing in preserved specimens and figures that they were no other than the true *Æstrus tarandi*. The pupa-case in the above is uncommonly like that of the *Æstrus bovis* of Clark, as may be seen on comparison with his plate in the 'Linnean Transactions;' but he himself specially calls attention to *Æstrus tarandi* being larger, and with a longer, narrower, tapering abdomen.

Linnaeus's own account of the manner in which the Reindeer are attacked, unfortunately, I have been unable to refer to; but Mr. Clark quotes passages of his travels in Lapland, where he says the Reindeer crowded in multitudes round the hut at night in an excited condition, owing to fear of these insects. On another occasion, when travelling on a journey, the Reindeer in the team, on the fly alighting on it, suddenly stood still, apparently paralyzed with fear.

Another curious point connected with the insects brought forth in the Gardens was, that the moment of their escape from the pupa-case vast numbers of minute white-coloured parasites scampered everywhere over their bodies, and issued in troops out of the case itself. It would seem, therefore, that these *Acari* infest the insect even before it is hatched. In the present instance there could be no doubt regarding their not being conveyed thither by external agency at the time, as the pupa-cases were in a perfectly clean gallipot covered with glass, and laid apart from every foreign substance likely to contain such creatures.

14. Account of a Case of Malformation in the Generative Organs of a Cow. By JAMES MURIE, M.D., F.G.S., Prosecutor to the Society.

Mr. G. Latimer, of Porto Rico, C.M.Z.S., kindly forwarded to us, in September 1865, a young Cow, which presented some peculiarities worthy of being recorded. No history of the animal was furnished by the donor, further than that the specimen was supposed

to be a curious example of an hermaphrodite. Although interesting physiologically as a specimen exhibiting deviation from the normal type in the sexual organs, yet the animal did not possess such other points of general or public interest as to entitle it to a permanent place in the Society's collection.

On anatomical investigation of the dead body it was found to afford indications of belonging either to the spurious kind of female hermaphroditism, or to be in some degree an example of what has been termed transverse hermaphroditism*,—that is, a malformation of the generative system wherein the internal organs belong to one sex and the external to another—or (as has been ingeniously suggested†) that, supposing a transverse line were drawn between the external and the internal parts, assuming these to be superimposed the one over the other, there would exist a different sex in the upper and lower segments.

Instances of transverse hermaphroditism in the lower mammalia are, comparatively speaking, not of unfrequent occurrence; but the present one, if strictly coming under that denomination, is rendered interesting by possessing, in some respects, a structural condition allying it to the rare division of transverse hermaphroditism in which the external organs are of the male type, the internal of the female‡. It presents a kind of intermediate stage or grade of what is known as the Free Martin§—that variety of sexual malformation in twin cattle, one of which bears external resemblances to a female, or has superadded individual male organs, but even when purely feminine in structure is often barren.

To convey an idea of the bodily appearance of this animal sent to the Gardens, I shall jot down a few points appertaining thereto; for in cases of genital malformation it is desirable to observe how far the outward character agrees with, or deviates from, the true sexual organization.

In size it was about equal to an Alderney Cow. There was nothing remarkable in colour, which was as follows:—Head blackish brown; muzzle and tips of ears nearly black; back and well down the sides lightish brown, shading below and on the outer aspect of the legs to a more blackish brown, becoming entirely black below the hocks; each hind leg just above the hoof marked by a broad circle of white hairs; axillary and inguinal regions whitish; tail dark brown, ending in a tuft of strong black hairs.

The horns were short, gently tapering to the points, and having an outward and forward spread. Ears finely formed, not long, but conspicuously directed upwards and slightly forwards.

Dr. Crisp, who examined the living animal along with me, considered at first sight that it bore resemblances fully as much to the

* Gurlt, Lehrbuch der pathol. Anat. der Haus-Säugethiere, (1832) vol. ii. p. 185.

† See Prof. Simpson's article, "Hermaphroditism," in the 'Cyclop. of Anat. and Physiol.' vol. ii. p. 685.

‡ Var. *a.* Hermaph. transv. masculinus, of Gurlt, *loc. cit.* p. 186.

§ Hunter, Phil. Trans. 1779; and Palmer's Edit. of Hunter's Works, 1837 vol. iv. p. 34.

male as the female sex ; I was inclined rather to regard it as a heifer. On more careful scrutiny, however, we at length agreed that its general physical appearance approached nearest to that of a castrated animal—chiefly for the reason that the head had a slight masculine tendency, the shoulders and neck being also somewhat heavier than is usually met with in a young female, although, upon the whole, the proportions of body and limbs might perhaps be deemed too delicate for a male.

Sexual distinction, so far as the external genital organs were concerned, was in favour of its being in reality a male ; for there was an absence of vaginal opening in the usual situation ; and when micturition took place, the urine escaped from an abdominal urethral-like orifice, marked, as in a bull, by a prominently hanging fold of skin on which were developed numerous long and strong hairs.

Upon examination after death, none of the viscera were found to exhibit anything abnormal* in their formation, with the exception of the genito-urinary organs.

In proceeding to describe the condition of these malformed parts, it will be convenient to commence with the external organs, continuing from without inwards. The accompanying figure (p. 595) illustrates the peculiar anatomical points described in detail. It is reduced from a photograph of the parts, exhibited as a dissected preparation.

The *anus* and *rectum* were natural in position and structure (see figure, letters *A.* and *R.*). Below the former the skin seemed rather bare of hair, more full and lax than usual in a male animal, but with no trace of a vulva at this part, the distance between the anus and the genito-urinary (abdominal) outlet (*U. g. o.*) measuring $19\frac{1}{2}$ inches. Along this space there was a prominent perineal raphe having a dark line on its summit, and with short hairs on either side parted outwards. This raphe ended nearly 2 inches behind the genital orifice, in a very slightly raised glandular or rough patch almost as large as a shilling.

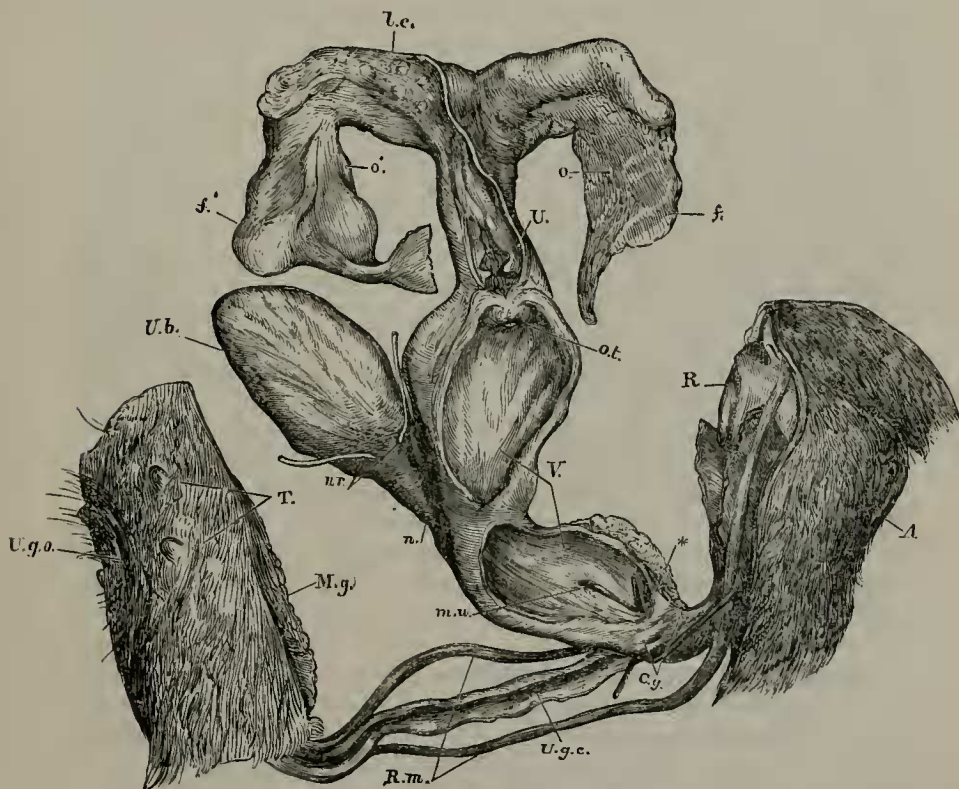
Four teats were present (*T.*), and two rather imperfectly developed *mammary glands* (*M. g.*) ; these were placed apparently slightly in advance of their usual situation in a Cow. The glandular texture of the latter was so incorporated with fat and resembled the surrounding adipose tissue so much in colour and consistence as to be with difficulty distinguishable from it. In dimensions the mammæ were each about 5 inches long and $1\frac{1}{2}$ to 2 inches broad, but thin in proportion.

The *umbilicus* was placed at a distance of $13\frac{1}{2}$ inches forwards from the genital opening, its cicatrix was half an inch in length.

The *urino-genital outlet* (*U. g. o.*) opened between the atrophied udders. It was a widish semilunar cleft fully 2 inches long, and

* The pathological condition is not here referred to ; the organs, however, seemed all healthy, the only notable exception being an enlarged state of the solitary glands of the intestine, which Dr. Crisp believed to be diseased, but which I was inclined to attach no importance to, rather considering them to exhibit an enlarged but healthy functional condition.

partially divided anteriorly by a dependent fold of skin, which at its posterior end had the long pencil of hairs upon it, as already mentioned, simulating in appearance the prepuce of a male, though more truly representing a clitoris. At the bottom of this genital cleft, its posterior convex end, there was a narrow slit-like aperture, fully three-quarters of an inch long, which led into a thick-walled membranous or fibro-elastic tube (the common *urethro-vaginal canal* or passage, *U. g. c.*), which, when dissected free from the surrounding tissues, looked uncommonly like a long narrow penis. This proceeded upwards and backwards towards the pubic arch, where it communicated by a constricted opening with the true vagina. The tube close to the abdominal outlet was $1\frac{1}{2}$ inch in diameter, but immediately beyond and for the remainder of its length it was considerably narrower; but just before joining the vagina it had a second dilatation.



Malformed parts displayed as an anatomical preparation.

A. Anus, and *R.* Rectum. *U. g. o.* Urino-genital outlet. *T.* Teats. *M. g.* Mammary gland. *U. g. c.* Urino-genital canal. *R. m.* Retractor muscles. *V.* Vagina. *U.* Uterus. *l. c.* Left cornu, cut open to show the cotyledons. *O. t.* Os tincae. *o. o.* Position of ovaries. *f. f.* indicate position of fimbriated extremities of Fallopian tubes. *U. b.* Urinary bladder; *n.* neck; *ur.* ureters; *m. u.* meatus urinarius. *C. g.* Cowper's glands. * points to the *cul de sac* and a style passed through the opening between the vagina and urino-genital canal.

The structures forming this long urethra were an inner mucous lining, surrounded by elastic fibrous tissue, but no true and continuous corpus cavernosum or spongiosum. Nevertheless at the vaginal end there was a space, of about an inch in extent, where the fibrous tissue was in open network, the meshes closely resembling the peculiar cellulovascular structure of erectile tissue belonging to the corpus cavernosum and clitoris.

As if further supporting the similitude of a penis, this urethral canal possessed two long cord-like *retractor muscles* (*R. m.*) (*erectores clitoridis?*), which were closely applied to either side of its outer walls. These muscles arose from the tissues between the tail and rectum, and, running parallel with the tube, were inserted on the right and left sides of the vulva.

The *vagina* (*V.*) was considerably dilated, and measured $10\frac{1}{2}$ inches from the os uteri to its abrupt termination in a *cul de sac* near the rectum. This *cul de sac* was firmly attached by strong fibrous substance to the deep fascia of the perineum. The mucous membrane and walls of the vagina were normal-looking and with the usual numerous longitudinally parallel plications. On its inferior or abdominal wall, $1\frac{1}{2}$ inch from the terminal blind sac, was a slit-shaped opening, the meatus urinarius (*m. u.*). Posterior to this was a second orifice, namely that which led into the long fibro-membranous tube already spoken of, the common urino-genital canal.

The *uterus* (*U.*) and appendages, as a whole, appeared completely developed, and the former of regular dimensions. Each *cornu*, as well as the body and neck of the uterus, when cut open also showed nothing abnormal; the former had small cotyledonal elevations, the latter the usual longitudinal and transverse rugæ. The *os tincae* (*o. t.*) was well formed. The dimensions of the uterus were as follows:—From the os tincae to the divarication of the cornua $2''\cdot7$, each cornua (following the curve) about 7 inches in length.

The *ovaries*, right and left (*o. o'*), were contained in the folds of the broad ligament; but neither of these bodies were of large size. A section of the right one disclosed two corpora lutea, of a reddish colour and of a dense homogeneous texture. The larger one of these corpora lutea equalled a canary-seed in size, and projected slightly upon the surface of the ovary.

The *Fallopian* tubes terminated in delicate but well-formed fimbriated extremities (*f. f'*), but were not pervious for their entire length. This was ascertained by first trying to pass a very delicate silver wire along the canal from the end next the uterus, but which would not enter beyond a third of the way. Afterwards a thin-coloured injection was forced in from the opening at the fimbriated extremity; but this ran in only as far as a third of the distance from that side, while a fluid introduced from the cornual or uterine end did not pass any further than the wire—thus proving that the middle third of the tube was in a closed condition.

The *urinary bladder* (*U. b.*) had its usual relative position with respect to the uterus and other viscera. In its contracted state it measured from the fundus to the neck about 7 inches. The neck (*n.*),

which was wide, had a length of $4\frac{1}{2}$ inches; its orifice penetrated the walls of the vagina by the longitudinal fissure of the meatus urinarius (*m. u.*), previously described.

The representatives of Cowper's glands (*C. g.*), or those of Bartholinus, were two somewhat flattened oval glandular bodies, each about 1 inch long and $\frac{6}{10}$ of an inch broad, which were placed on either side of the outer walls of the vagina, at the *cul de sac*, nearly opposite where the urino-genital canal was given off; and these opened by minute pin-hole-sized orifices or slits into the vagina.

There was no trace of testicles.

If we sum up the results of the anatomical examination, we find that, of female organs, there were present:—Diminutive ovaries; impervious Fallopian tubes, and a normal uterus, connected with a vagina which ended anomalously in a *cul de sac* within the pelvic region, a natural vulva being thus wanting, whilst the neck of the bladder opened into the vagina above the blind sac.

On the contrary, simulating male organs were:—The long urino-genital canal, derived from the lower wall of the vagina and terminating between the udders, which tube, with its very rudimentary corpus cavernosum and two long retractor muscles, bore tolerable resemblance to an imperfect penis.

In this manner, by balancing as it were the several organs, it would appear that the animal was essentially a female, and in such respects might come under Professor Simpson's* definition of "spurious female hermaphroditic malformations." Nevertheless, combining as it did some outward characters of male conformation, and also the tendency in development of the urino-genital canal to form, not merely a preternaturally enlarged normally placed clitoris, but rather, in the advanced position, &c., of the genitals, an essentially male type of intromittent organ, it might on such grounds be considered, if not a perfect example of, at least a curious approximation to, the above author's subdivision of "True transverse hermaphroditism"—"the external sexual organs male, internal female." But, under whichever of the above heads of teratological classification in strictness it ought to be included, the outer genital apparatus blended together conditions appertaining to the masculine and feminine types.

By way of contrast, and the better to exemplify by comparison, I shall briefly allude to two animals dissected by John Hunter, which are among those which go under the name of "Free Martin."

The first specimen, of which the preserved parts form Preparation no. 240, 'Catalogue of Monsters, Royal Coll. of Surg. Museum,' Hunter records† the living animal as having "more of the characters of an ox or spayed heifer than either bull or cow." According to his description and my examination of the preparation, the vagina is placed naturally, but terminates blindly at a short distance from the outer opening. An organ, supposed by him to be a uterus, divides into two horns with bodies more like testicles than ovaries. Vesi-

* Todd's Cyclopædia, vol. ii. p. 685.

† Animal Economy, p. 62, pls. 8, 10; also Museum Drawings.

culæ seminales coexist, but, according to Hunter, no vasa deferentia*.

Prof. Simpson † has placed this case of Hunter's "Free Martin" under his division of "Transverse hermaphroditism with the external organs of the female type," while M. Isidore Geoffroy Saint-Hilaire ‡ has regarded it as belonging to his "*Hermaphroditismes neutres*."

Without deciding which of these two authors' views is the more applicable one, it is sufficient for my purpose to remark that the fact of the creatures possessing testicles and vesiculæ seminales, and only a very doubtful and imperfectly pronounced uterus, with naturally formed outward female genital organs, completely differentiates it from our Porto Rico animal.

In the second Hunterian specimen, now forming no. 242 in the above 'Catalogue' of the College, it appears that the animal had an Ox-like aspect, with the outward genital conformation of a Cow, the vulva being placed lower down than usual, but not so entirely abdominal as in the animal forwarded by Mr. Latimer. From examination of the Museum preparation, the distance between the anus and vaginal aperture is nearly as much as 12 inches, in this respect bearing resemblance to our case; but the perineal raphe is by no means so well marked.

The vulva also, and the clitoris in its peaked prominent form, more nearly agree with what is the normal condition in Cows; but, as in the Society's specimen, there are long and projecting hairs at the genital outlet. The uterus, however, is very defective in structure. Testicles are present, and a true penis. This latter occupies its usual abdominal situation as in Bulls; but it is of small calibre, distinct, and tortuous, although not perfectly developed, so far as an outer passage is concerned.

The presence of a male abdominal organ approximates it to our specimen; but the line of demarcation is clear; for, besides this small organ, there is a natural vagina, along with other true male structures wanting in that which I have described.

The two instances cited above, taken along with that forming the subject of the present paper, afford remarkably good illustrations of abnormalities wherein the type of sexuality sways from male organs internally and female externally to very nearly female organs internally and male externally, which curious anomaly has its antecedents in the evolution of the organism *in utero*.

In reasoning as to the probable origin of hermaphroditism, most

* Gurlt, as quoted by Simpson (*loc. cit.* p. 702), expresses an opinion that the deferent vessels are what Hunter has mistaken for the uterine horns. The present bottled condition of the specimen renders it difficult to redetermine this point.

† *Op. cit.* p. 702.

‡ *Histoire des Anomalies*, tome i. p. 289. In comparing as above the Society's animal with Simpson's classification (a modification of Gurlt's), rather than adopting the celebrated French anatomist's divisions, I have been guided solely by the facility of its comprehension, preferring not to enter into a discussion regarding the significance of the term *neuter* as applied by Geoffroy to cases exhibiting doubtful sex.